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19 Apr 2006

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Dear Ms. Lee and Ms. Constantinescu:

I am pleased to submit to you the *Draft Site 1 Landfill 2005 Annual Report* for the former Naval Air Station (NAS) Moffett Field, Moffett Field, California. Please provide any comments by 19 May 2006. If you have any questions, please contact Mr. Wilson Doctor at (619) 532-0928 or me at (619) 532-0952.

Sincerely,

*"Signature on file"*

RICK WEISSENBORN  
BRAC Environmental Coordinator  
By direction of the Director

Enclosure: 1. *Draft Site 1 Landfill 2005 Annual Report* dated April 19, 2006

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**Base Realignment and Closure  
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**DRAFT  
SITE 1 LANDFILL  
2005 ANNUAL REPORT  
April 19, 2006**

**FORMER NAVAL AIR STATION MOFFETT FIELD  
MOFFETT FIELD, CALIFORNIA**

**Base Realignment and Closure  
Program Management Office West  
1455 Frazee Road, Suite 900  
San Diego, California 92108**

**CONTRACT No. N68711-98-D-5713  
CTO No. 0086**

**DRAFT  
SITE 1 LANDFILL 2005 ANNUAL REPORT  
April 19, 2006**

**FORMER NAVAL AIR STATION MOFFETT FIELD  
MOFFETT FIELD, CALIFORNIA**

**DCN: FWSD-RAC-06-0663**



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## ABBREVIATIONS AND ACRONYMS

µg/L	micrograms per liter
µmhos/cm	micromhos per centimeter
°C	degrees Celsius
bgs	below ground surface
BHC	benzene hexachloride
CCL	calculated concentration limit
COC	constituent of concern
DEH	Santa Clara County Department of Environmental Health
DO	dissolved oxygen
DUP	duplicate sample
EPA	United States Environmental Protection Agency
ft	feet
ft/ft	foot per foot
GS	ground surface
GV	gas vent
J	estimated value
LGMW	landfill gas monitoring well
LTMP	Final Site 1 Landfill Post-Closure Long-Term Monitoring Plan
Maintenance Plan	Final Site 1 Landfill Post-Closure Long-Term Maintenance Plan
MDL	method detection limit
mg/L	milligrams per liter
Moffett	former Naval Air Station Moffett Field
MP	monitoring parameter
msl	mean sea level
mV	millivolts
NAD	North American Datum
NAS	Naval Air Station
NASA	National Aeronautics and Space Administration
NGVD	National Geodetic Vertical Datum
NTU	nephelometric turbidity unit

## **ABBREVIATIONS AND ACRONYMS**

(Continued)

ORP	oxidation reduction potential
OU1	Operable Unit 1
pH	hydrogen (ion) concentration
ROD	Record of Decision
SQL	sample quantitation limit
SVOC	semivolatile organic compound
Tech Memo	Final Technical Memorandum, Site 1 Groundwater Evaluation Process
ToC	top of casing
TtFW	Tetra Tech FW, Inc.
U	analyte not detected above method reporting limit
USFWS	United States Fish and Wildlife Service
VOC	volatile organic compound

## EXECUTIVE SUMMARY

This document summarizes the 2005 monitoring and maintenance activities conducted at the Site 1 Landfill and presents the results of evaluating the post-closure groundwater monitoring data collected at the Site 1 Landfill in 2005. The content of this report meets the requirements of the *Moffett Federal Airfield Final Operable Unit 1 Record of Decision* and the Title 27 California Code of Regulations, Subchapter 3. The Site 1 Landfill is located at the northern end of the former Naval Air Station Moffett Field, located near Mountain View, California.

Depth-to-groundwater measurements, groundwater sampling, and methane monitoring were conducted at the Site 1 Landfill in April and October 2005 in accordance with the *Final Site 1 Landfill Post-Closure Long-Term Monitoring Plan* issued in March 2005. Groundwater samples were collected from nine monitoring wells, as well as from collection trench well W1-22. Collection trench well W1-23 could not be sampled due to insufficient water. The analytical monitoring parameters (MPs) include selected metals, volatile organic compounds (VOCs), pesticides, and semivolatile organic compounds (SVOCs).

SVOCs and mercury were analyzed in supplemental groundwater sampling events in January and March 2005 because SVOCs and mercury were not analyzed historically at Site 1. SVOCs and mercury were not detected in these sampling events. Water level measurements also were taken during these supplemental sampling events.

Depth to groundwater measurements were collected from Site 1 Landfill monitoring wells, piezometers, and collection trench wells on January 31, March 7, April 11, and October 3, 2005. The groundwater elevations were similar to previous years. The groundwater flows from north to south at the Site 1 Landfill. The water levels in monitoring well pairs generally show upward potential. Most monitoring wells had seasonal high water levels in March 2005 and seasonal low water levels in October 2005. The seasonal water level fluctuation was on the order of approximately 1 foot.

MP analytical results of 2005 groundwater sampling at Site 1 were evaluated in accordance with the procedures provided in the *Final Technical Memorandum, Site 1 Groundwater Evaluation Process* (Tech Memo) issued in April 2004. The Tech Memo provided calculated concentration limits (CCLs) for the MPs that were developed based on ecological screening criteria and site-specific attenuation factors for the groundwater. These CCLs are used as initial screening criteria in the groundwater evaluation.

During 2005, no reported VOC or SVOC MP concentrations were greater than the applicable CCLs. Barium concentrations were greater than the applicable CCL in samples from every

monitoring well during both semiannual sampling events in 2005. However, the exceedances were less than historical background levels. Therefore, there was no release from the landfill. Heptachlor was also detected at a concentration greater than the applicable CCL during the April 2005 sampling event. However, the detection was in a sample from a background monitoring well and there was no release from the landfill.

As part of landfill monitoring activities, methane monitoring was conducted for 19 passive gas vent wells within the Site 1 Landfill and 4 landfill gas monitoring wells on the perimeter of the landfill. Methane monitoring was also performed at the perimeter of the site at 150-foot intervals at 21 locations. In general, the percentages of methane gas concentrations within the landfill were lower in October 2005 than in April 2005 and were similar to historical concentrations. None of the perimeter wells showed concentrations of methane above the Title 27 concentration limit of 5 percent (all readings were zero percent). Methane was not detected at any of the perimeter monitoring locations in April or October 2005.

Maintenance activities were conducted at the Site 1 Landfill during 2005 in accordance with the *Final Site 1 Landfill Post-Closure Long-Term Maintenance Plan* issued in March 2005. These activities included inspection and repair, as required, of the landfill cover (including cutting the grass and the weeds), the raptor perches, landfill gas vents and monitoring wells, groundwater monitoring wells, piezometers, collection trench wells, and stormwater runoff controls. Santa Clara County Department of Environmental Health inspected Site 1 quarterly in 2005. No problems or deficiencies were identified.



## 1.0 INTRODUCTION

This document summarizes the 2005 monitoring and maintenance activities conducted at the Site 1 Landfill and presents the results of evaluating the post-closure groundwater monitoring data collected at the Site 1 Landfill in 2005. The content of this report meets the requirements of the *Moffett Federal Airfield Final Operable Unit 1 [OU1] Record of Decision [ROD]* and Title 27 California Code of Regulations, Subchapter 3. The Site 1 Landfill is located at the northern end of the former Naval Air Station Moffett Field (Moffett), located near Mountain View, California (Figure 1-1 and Figure 1-2). This report was prepared on behalf of the Base Realignment and Closure Program Management Office West. This work was conducted under Contract Task Order Number 0086, issued under Remedial Action Contract No. N68711-98-D-5713.

The purpose of this Annual Report is to present the results of groundwater monitoring and methane monitoring conducted in 2005 for the detection monitoring program at the Site 1 Landfill. It also includes a description of maintenance conducted at the Site 1 Landfill during 2005. Appendices A through F include field sampling data, analytical data, statistical evaluation, analytical data validation packages, groundwater hydrographs, groundwater monitoring point data graphs, and methane monitoring data graphs.

### 1.1 SITE LOCATION

Moffett is located about 1 mile south of the San Francisco Bay in Santa Clara County, California (see Figure 1-1). Moffett is bounded by United States Fish and Wildlife Service (USFWS) property to the north, Stevens Creek to the west, U.S. Highway 101 to the south, and Lockheed Martin to the east (see Figure 1-2).

The Site 1 Landfill is located in the northernmost portion of Moffett and encompasses approximately 12 acres. The Site 1 Landfill (historically referred to as the Runway Landfill) lies at the north end of the runways between North Perimeter Road, the USFWS property, and the Stormwater Retention Basin (see Figure 1-2).

### 1.2 2005 MONITORING AND MAINTENANCE ACTIVITIES

Monitoring activities conducted in 2005 at Site 1 included depth to groundwater measurements, groundwater sampling, and methane monitoring. Groundwater monitoring at Site 1 was conducted during 2005 in accordance with the *Final Site 1 Landfill Post-Closure Long-Term Monitoring Plan* (LTMP) (Tetra Tech FW, Inc. [TtFW], 2005a). The groundwater evaluation process was conducted in accordance with the *Technical Memorandum, Site 1 Groundwater Evaluation Process* (Tech Memo) (TtFW, 2004), which was finalized in April 2004. Maintenance activities in 2005 at Site 1 were conducted in accordance with the *Final Site 1 Landfill Post-Closure Long-Term Maintenance Plan* (Maintenance Plan) (TtFW, 2005b).

As approved by the regulatory agencies, the sampling frequency and analyses were modified in accordance with the Tech Memo and the LTMP. Groundwater samples were collected semiannually and analyzed for the Site 1 monitoring parameters (MPs). Methane monitoring was conducted in accordance with Section 4 of the LTMP.

Depth to groundwater measurements, groundwater sampling, and methane monitoring were conducted at the Site 1 Landfill in April and October 2005. Groundwater samples were collected from nine monitoring wells and from collection trench well W1-22. Collection trench well W1-23 could not be sampled because of insufficient water. Table 1-1 provides well construction information for all Site 1 monitoring wells. The analytical MPs include selected metals, volatile organic compounds, pesticides, and semivolatile organic compounds (SVOCs).

SVOCs and mercury sampling were conducted as supplemental groundwater sampling events in January and March 2005 because SVOCs and mercury were not analyzed historically at Site 1. Water level measurements also were taken during these supplemental sampling events.

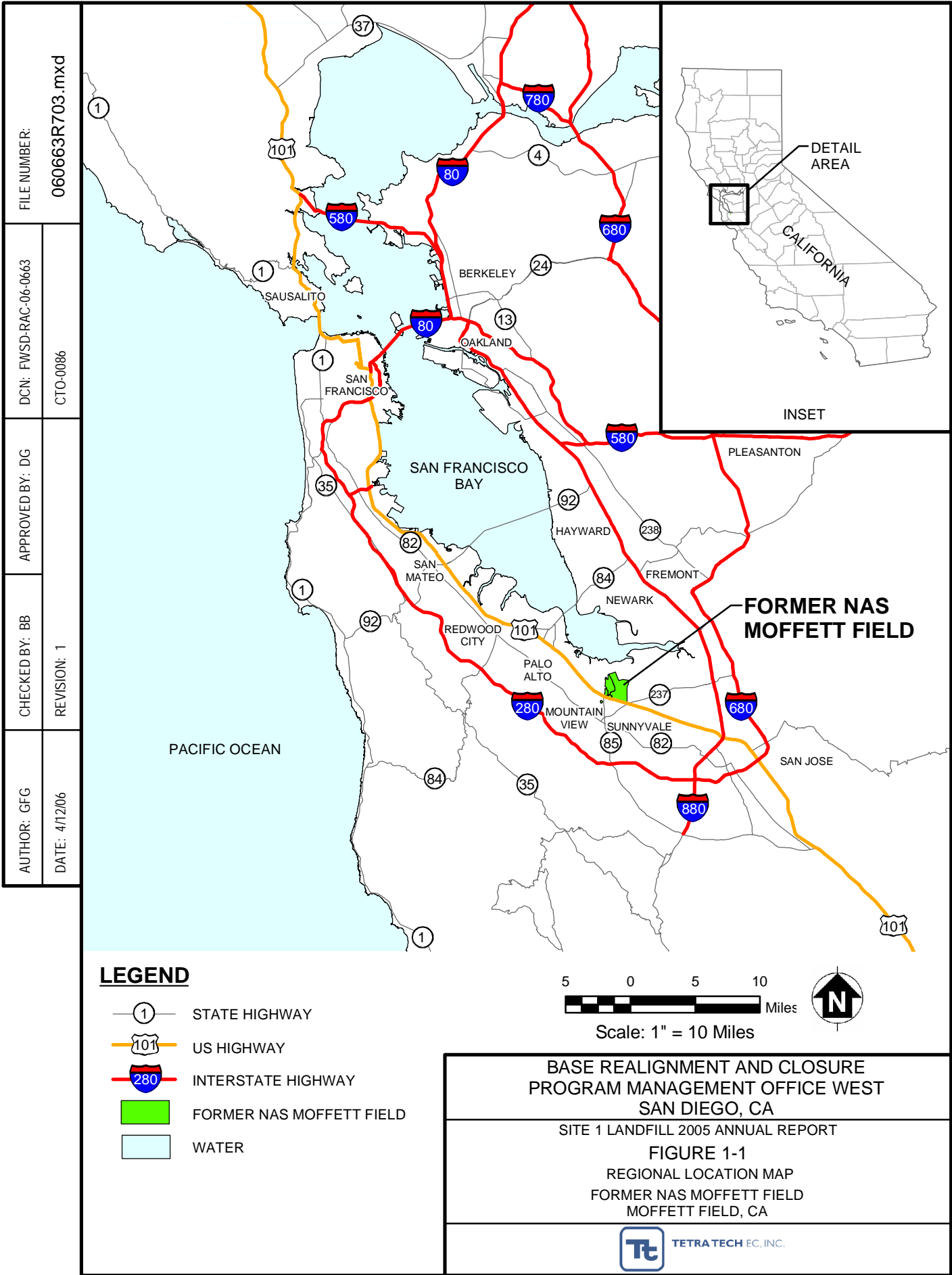
Maintenance activities were conducted at the Site 1 Landfill during 2005 in accordance with the Maintenance Plan. These activities include inspection and repair, as necessary, of the landfill cap, stormwater runoff and control measures, raptor perches, landfill gas vents, perimeter landfill gas monitoring wells, the landfill gas-venting trench and gas vents, collection trench and collection trench wells, and groundwater monitoring wells and piezometers. Site 1 inspections were conducted in January, February, May, August, and November 2005. Inspection checklists and maintenance activities are provided in Appendix G.

Santa Clara County Department of Environmental Health (DEH) also inspects the Site 1 Landfill quarterly. Neither problems nor deficiencies were noted during DEH inspections. The DEH inspection reports are provided in Appendix G.

### **1.3 BASIS OF DATA EVALUATION**

Remedial activities at Moffett are conducted as part of the Installation Restoration Program established by the Department of Defense to identify, evaluate, and control the spread of contaminants from historical hazardous waste sites. The Site 1 Landfill is in OU1. The content of this report meets the requirements stated in the ROD (Navy, 1997) for OU1 and Title 27 California Code of Regulations, Subchapter 3.

The ROD for OU1 (Navy, 1997) summarizes site characteristics and risks, describes and evaluates the remedial alternatives, identifies the selected remedy, and identifies statutory determinations (including compliance with applicable or relevant and appropriate requirements). The major elements of the selected remedy for the Site 1 Landfill are a landfill cap, landfill gas-venting trench, subsurface collection trench, groundwater and methane monitoring, institutional controls, and post-closure maintenance. Remedial actions were completed in November 1998, and methane and groundwater monitoring began in 1999.



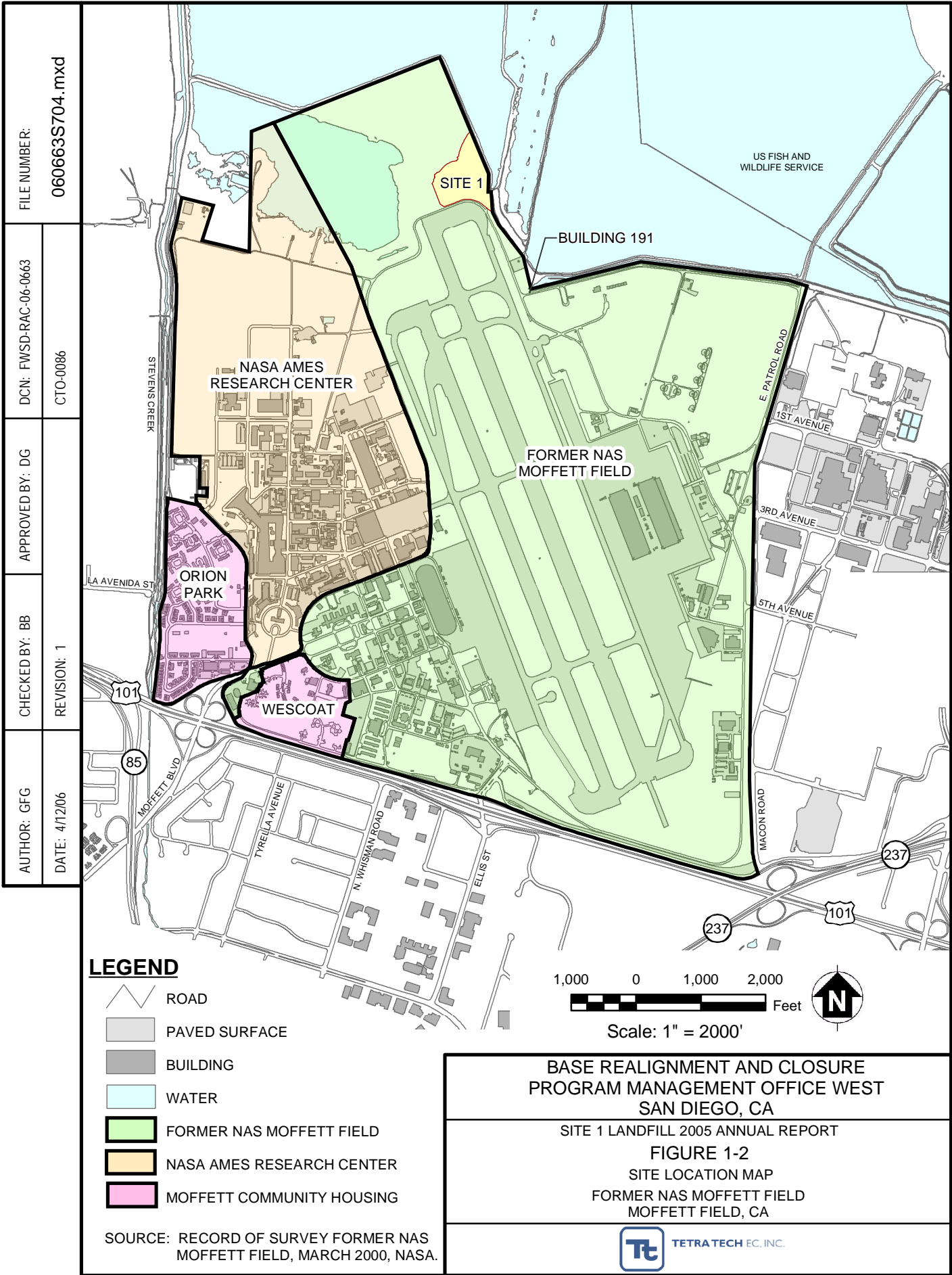


TABLE 1-1

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
WELL CONSTRUCTION INFORMATION  
FORMER NAS MOFFETT FIELD**

Location	Northing (feet)	Easting (feet)	Diameter (inches)	ToC Elevation (feet) <sup>1</sup>	GS Elevations (feet) <sup>1</sup>	Total Well Depth (feet bgs)	Depth of Screen Interval (feet bgs)
W1-1R	1982659.6	6111220.3	4	4.83	2.21	25.5	14.3 - 24.3
W1-5	1983794.1	6110944.4	4	3.02	1.92	21.5	14.5 - 19.5
W1-6	1982637.3	6110949.3	4	-0.56	0.47	34.0	15.0 - 30.0
W1-7	1982901.0	6110315.6	4	0.24	0.04	75.0	40.0 - 70.0
W1-8	1983376.9	6111117.5	4	2.95	1.07	25.0	13.0 - 18.0
W1-12R	1983385.0	6110711.3	4	0.17	0.08	22.0	11.7 - 21.7
W1-14	1982829.9	6110399.9	2	2.46	-0.72	14.1	4.1 - 14.1
W1-15	1982790.0	6110909.9	2	2.60	-0.25	14.4	4.4 - 14.4
W1-16	1982900.5	6111204.4	2	3.82	1.35	15.4	5.4 - 15.4
W1-19	1982709.2	6110545.2	2	1.98	-0.43	19.0	14.0 - 19.0
W1-20	1982767.6	6110817.0	2	2.72	-0.11	19.0	14.0 - 19.0
W1-22 <sup>2</sup>	1983496.9	6110774.9	8	1.12	2.10	7.0	2.5 - 7.0
W1-23 <sup>2</sup>	1983212.8	6110510.7	8	0.83	2.18	7.0	2.5 - 7.0
W1-24	1983156.0	6111212.9	4	4.27	1.88	24.5	6.0 - 16.0
PZ1-18 <sup>3</sup>	1982709.9	6110549.7	2	2.25	-0.29	40.0	30.0 - 40.0
PZ1-21 <sup>3</sup>	1982770.6	6110822.3	2	2.28	-0.13	40.0	30.0 - 40.0

**Notes:**

<sup>1</sup> ToC referenced to survey conducted during November 2002, with the exception of W1-12R and W1-1R, which were surveyed in October 2003 and November 2004, respectively.

<sup>2</sup> W1-22 and W1-23 are collection trench wells and not groundwater monitoring wells.

<sup>3</sup> PZ1-18 and PZ1-21 are piezometers and not groundwater monitoring

Positions were determined using NASA Ames Research Center Control Monument ARC-32, a disc set flush in concrete, 6.5 feet north of northeast edge of pavement (Patrol Road) and 75 feet east of Perimeter Road, and 2.5 feet west of the chain-link fence.

Northings and eastings are shown in NAD83, elevations are shown in NGVD29.

Measuring point is recorded from top of well casing.

The screen interval for replacement wells W1-1R and W1-12R are similar to those of the original wells they replaced (within 1 foot of the screen interval for the original wells).

**Abbreviations and Acronyms:**

bgs - below ground surface

GS - ground surface

NAD - North American Datum

NAS - Naval Air Station

NASA - National Aeronautics and Space Administration

NGVD - National Geodetic Vertical Datum

ToC - top of casing

The evaluation of Site 1 groundwater analytical results presented in this report was conducted in accordance with the Tech Memo (TtFW, 2004). The Tech Memo documented the groundwater detection monitoring program, MPs, calculated concentration limits (CCLs), and described the statistical evaluation process for the Site 1 Landfill post-closure monitoring. The MPs are a set of parameters that provide a reliable indication of a release from a landfill. The MPs include physical and analytical parameters that are a subset of the constituents of concern (COCs). The CCLs were developed based on ecological screening criteria and site-specific attenuation factors for the groundwater. These CCLs are used as initial screening criteria in the groundwater evaluation. If analytical results are less than the CCLs, then no additional evaluation is required, and there is no release from the landfill. If CCLs are exceeded, then additional evaluation of upgradient (background) and downgradient data is conducted to determine whether there has been a release from the landfill. Appendices A and B of this document contain the field sampling data and analytical summary and CCL evaluation tables.

## 1.4 REPORT ORGANIZATION

This report is divided into the following sections:

- **Section 1.0: Introduction**, presents the site location, monitoring and maintenance activities, the basis of the data evaluation, and the report organization.
- **Section 2.0: Groundwater Hydraulics**, presents the Site 1 groundwater gradient, flow direction, and water level trends.
- **Section 3.0: Groundwater Sampling**, summarizes the Site 1 groundwater analytical data and presents the results of the evaluation of the groundwater data.
- **Section 4.0: Methane Monitoring**, summarizes the Site 1 methane monitoring data in the landfill gas monitoring wells, the landfill gas vents, and the perimeter gas monitoring points.
- **Section 5.0: Conclusions**, presents the conclusions and recommendations.
- **Section 6.0: References**, presents the references for this report.
- **Tables and figures** are incorporated into the text.
- **Appendix A** contains the field sampling data sheets.
- **Appendix B** contains a summary of the analytical tables and the CCL tables.
- **Appendix C** presents the Site 1 groundwater validated analytical results.
- **Appendix D** provides hydrographs of the Site 1 groundwater monitoring wells, piezometers, and collection trench wells.
- **Appendix E** provides time-series concentration graphs of monitoring points for each monitoring parameter that was detected in 2005.
- **Appendix F** provides time-series methane concentration graphs of the landfill gas monitoring wells and landfill gas vents.

- **Appendix G** provides the 2005 general site inspection reports and the 2005 Santa Clara County landfill inspection reports.
- **Appendix H** provides correspondence from 2005.

## 2.0 GROUNDWATER HYDRAULICS

This section describes the Site 1 hydrogeology, groundwater gradient and flow direction, and water level trends.

The stratigraphy of the Site 1 Landfill is a complex interfingering of fine-grained units representing the boundary between alluvial and estuarine environments and fluctuations of the boundary caused by changes in sea level. Lithologic logs from shallow well borings indicate that the uppermost materials (zero to 60 feet below ground surface) are comprised of silts to silty clays, which are brown to black and moderately plastic in nature. Intermittent throughout the upper 60 feet are interfingered silty sands and clayey gravels, which are medium gray to black or brown. These materials are present as lenses or stringers and are not laterally or vertically continuous throughout the site.

Most of the groundwater elevations in the Site 1 Landfill groundwater monitoring wells are below mean sea level. The vadose zone, between the saturated zone and the land surface, consists of either imported fill material or clayey soils.

Shallow subsurface soil samples within the Site 1 Landfill and surrounding the site, taken below the landfill but above the permeable lenses within the upper portion of the shallow aquifer, were tested for porosity and permeability. The results indicate that soils below the landfill and above the shallow aquifer are generally clays with hydraulic conductivity values in the  $10^{-8}$  centimeter-per-second range (appropriate for clayey material [Freeze and Cherry, 1979]).

Groundwater in the upper portion of the shallow aquifer beneath the landfill generally flows north to south (Tetra Tech FW, Inc. [TtFW], 2004). The regional groundwater flow direction is south to north toward San Francisco Bay. The southward gradient underlying the Site 1 Landfill is opposite from the regional gradient because of active pumping of the Moffett storm drainage system. Pumping occurs at Building 191, located south of the Site 1 Landfill (see Figure 1-2). Building 191 began operating in the early 1950s. It consists of a subsurface concrete-lined vault, equipped with a passive pump, and receives water from nearby ditches and a French drain system underneath the runways (Tetra Tech EM, Inc., 2000). The pump station influences local groundwater gradients and reverses the local natural groundwater flow direction because the drainage system that feeds the pump station is below the water table in some areas.

Three water bodies are proximal to the Site 1 Landfill: the man-made ephemeral Stormwater Retention Basin to the north, former Jagel Slough to the southeast, and United States Fish and Wildlife Service property to the east (Figure 2-1). It appears that low-permeability barriers exist between the water bodies and the Site 1 Landfill, limiting subsurface water movement (Navy, 1997). As a result, head differences are maintained between each water body (International



Technology Corporation, 1993). Potential for flow from the landfill to the other bodies exists, but these restrictive barriers limit actual flow. Low-hydraulic conductivity, high-organic contents associated with the clays, and low-contaminant source concentrations combine to restrict flow and limit potential contaminant migration (Navy, 1997).

## **2.1 GROUNDWATER GRADIENT AND FLOW DIRECTION**

Field activities, conducted at the Site 1 Landfill in 2005, included four water level gauging events at monitoring wells, piezometers, and collection trench wells (Table 2-1). This section describes the collection of 2005 water level measurements and summarizes groundwater flow direction beneath the Site 1 Landfill. Figure 2-1 shows the locations for Site 1 water level measurements.

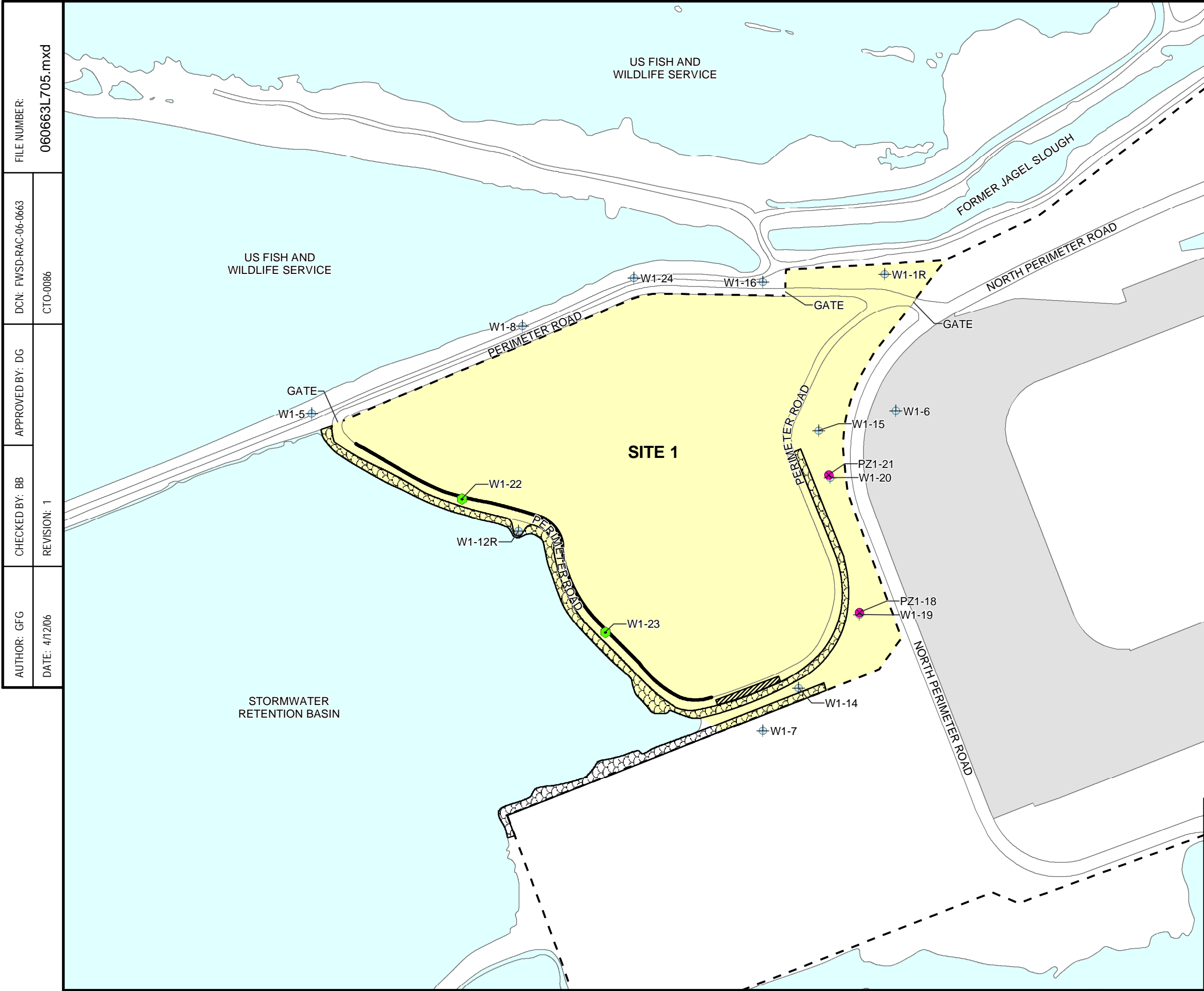
Measurements of depth to groundwater were made using an electronic measuring tape with markings every hundredth of a foot. All water levels were measured within a 24-hour period. Measurements were subtracted from surveyed measuring point elevations to calculate the groundwater level elevations.

Depth-to-groundwater measurements were collected from 12 monitoring wells, 2 piezometers, and 2 collection trench wells at the Site 1 Landfill on:

- January 31, 2005
- March 7, 2005
- April 11, 2005
- October 3, 2005

Groundwater elevations for all Site 1 Landfill groundwater measurements were below sea level for 2005. The potentiometric surfaces of the upper portion of the shallow aquifer, shown on Figure 2-2 through Figure 2-5, were based on groundwater elevations in monitoring wells of similar construction and screened in the upper portion of the shallow aquifer. For example, piezometers PZ1-18 and PZ1-21 and wells W1-6 and W1-7 were not considered in the contouring because they are screened at greater depths than the other wells and are not considered representative of the groundwater elevations in the upper portion of the shallow aquifer. In addition, collection trench wells W1-22 and W1-23 were not included, as they are screened within the collection trench north of the landfill and are not considered representative of groundwater elevations.

In general, the groundwater elevations were similar to previous years. Generally, the groundwater flows from north to south at the Site 1 Landfill. The gradient from north to south (W1-5 to W1-20) was approximately:



**LEGEND**

W1-5 GROUNDWATER MONITORING WELL

W1-22 COLLECTION TRENCH WELL

PZ1-18 PIEZOMETER

RIPRAP

GAS VENTING TRENCH

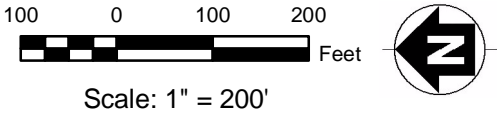
GROUNDWATER COLLECTION TRENCH

ROAD

SITE SECURITY FENCE

RUNWAY

WATER/WETLAND



BASE REALIGNMENT AND CLOSURE  
PROGRAM MANAGEMENT OFFICE WEST  
SAN DIEGO, CA

SITE 1 LANDFILL 2005 ANNUAL REPORT

FIGURE 2-1

LOCATIONS FOR SITE 1 WATER LEVEL MEASUREMENTS  
FORMER NAS MOFFETT FIELD  
MOFFETT FIELD, CA

TETRA TECH EC, INC.

TABLE 2-1

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
2005 GROUNDWATER ELEVATIONS  
FORMER NAS MOFFETT FIELD**

Location	ToC Elevation (ft msl)	January 31, 2005 Depth to Water <sup>1</sup> (ft)	January 31, 2005 Water Elevation (ft msl)	March 7, 2005 Depth to Water <sup>1</sup> (ft)	March 7, 2005 Water Elevation (ft msl)	April 11, 2005 Depth to Water <sup>1</sup> (ft)	April 11, 2005 Water Elevation (ft msl)	October 3, 2005 Depth to Water <sup>1</sup> (ft)	October 3, 2005 Water Elevation (ft msl)
W1-1R	4.83	7.77	-2.94	7.21	-2.38	7.55	-2.72	8.29	-3.46
W1-5	3.02	5.32	-2.30	4.80	-1.78	5.05	-2.03	5.68	-2.66
W1-6	-0.56	2.11	-2.67	2.21	-2.77	1.98	-2.54	2.26	-2.82
W1-7	0.24	2.98	-2.74	2.53	-2.29	2.55	-2.31	3.33	-3.09
W1-8	2.95	5.35	-2.40	4.88	-1.93	5.08	-2.13	5.76	-2.81
W1-12R	0.17	2.58	-2.41	2.02	-1.85	2.29	-2.12	3.04	-2.87
W1-14	2.46	5.21	-2.75	4.60	-2.14	4.88	-2.42	5.77	-3.31
W1-15	2.60	5.43	-2.83	4.82	-2.22	5.10	-2.50	5.90	-3.30
W1-16	3.82	7.50	-3.68	7.10	-3.28	6.69	-2.87	7.01	-3.19
W1-19	1.98	4.76	-2.78	4.18	-2.20	4.52	-2.54	5.37	-3.39
W1-20	2.72	5.57	-2.85	5.02	-2.30	5.28	-2.56	6.06	-3.34
W1-22 <sup>2</sup>	1.12	3.45	-2.33	2.95	-1.83	2.40	-1.28	3.69	-2.57
W1-23 <sup>2</sup>	0.83	5.61	-4.78	5.60	-4.77	5.48	-4.65	5.64	-4.81
W1-24	4.27	6.98	-2.71	6.38	-2.11	6.68	-2.41	7.34	-3.07
PZ1-18 <sup>3</sup>	2.25	5.10	-2.85	5.04	-2.79	4.62	-2.37	4.74	-2.49
PZ1-21 <sup>3</sup>	2.28	5.21	-2.93	4.56	-2.28	4.81	-2.53	5.60	-3.32

**Note:**

<sup>1</sup> - Depth to water may vary from field sampling data forms (Appendix A). Data were collected on separate dates.

<sup>2</sup> - W1-22 and W1-23 are collection trench wells, not groundwater monitoring wells.

<sup>3</sup> - PZ1-18 and PZ1-21 are piezometers, not groundwater monitoring wells.

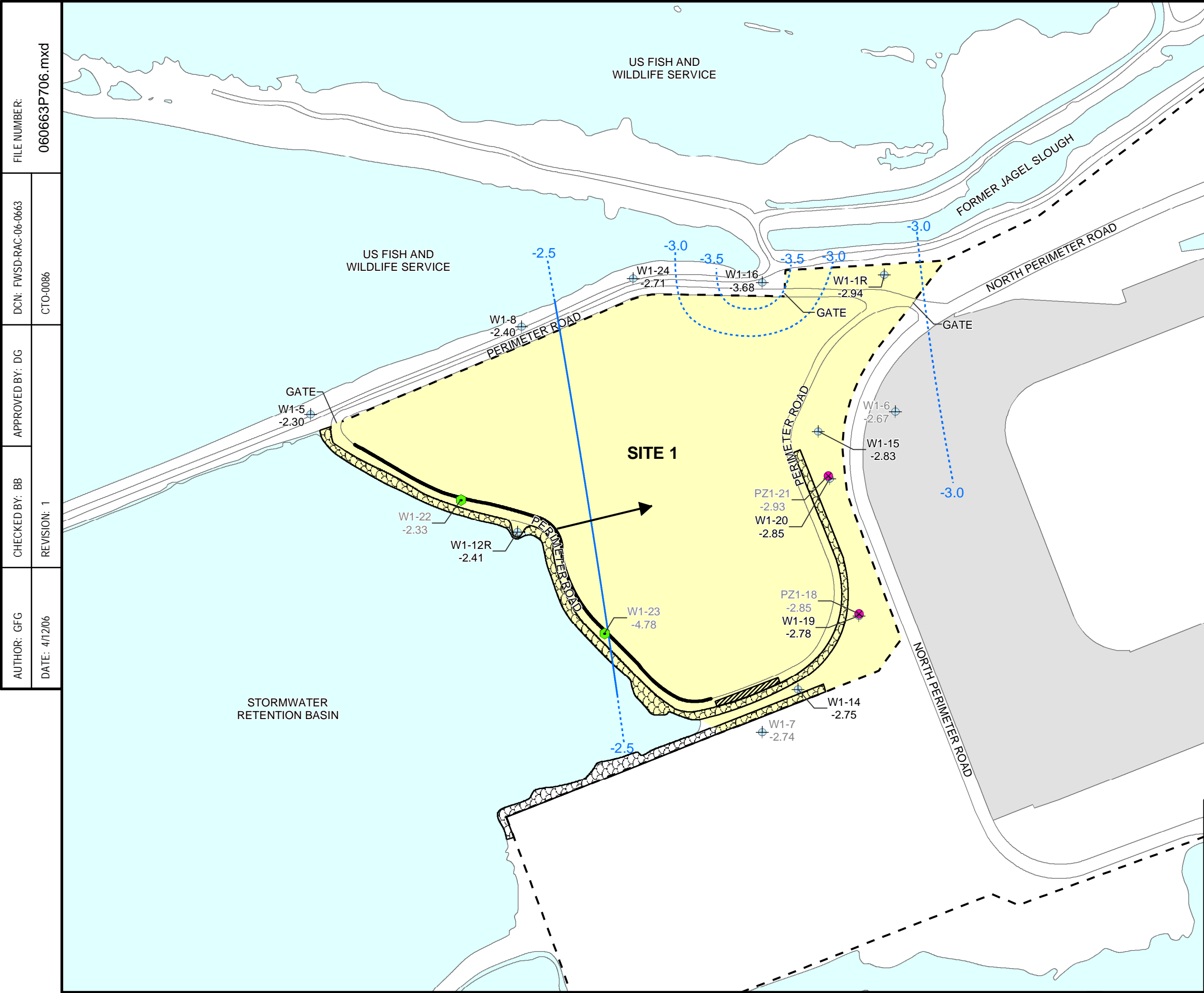
**Abbreviations and Acronyms:**

ft – feet

msl – mean sea level

NAS – Naval Air Station

ToC – top of casing



LEGEND

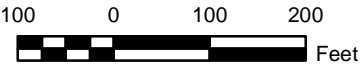
- W1-5 -2.66
- GROUNDWATER MONITORING WELL
- GROUNDWATER ELEVATION IN FEET (MSL)
- W1-22 -2.57
- COLLECTION TRENCH WELL
- WATER LEVEL NOT USED TO CREATE POTENTIOMETRIC SURFACE (a)
- PZ1-18 -2.49
- PIEZOMETER
- WATER LEVEL NOT USED TO CREATE POTENTIOMETRIC SURFACE (a)
- GENERAL GROUNDWATER FLOW DIRECTION
- INTERPRETED GROUNDWATER ELEVATION CONTOURED IN FEET (MSL), DASHED WHERE INFERRED. NEGATIVE VALUES ARE BELOW MSL
- GROUNDWATER COLLECTION TRENCH
- ROAD
- SITE SECURITY FENCE
- RIPRAP
- GAS VENTING TRENCH
- RUNWAY
- WATER/WETLAND

NOTES:

GROUNDWATER DEPRESSION AT MONITORING WELL W1-16 MAY BE DUE TO GAUGING WATER LEVEL PRIOR TO STABILIZATION

MSL - MEAN SEA LEVEL

(a) - WATER LEVEL IN MONITORING WELLS, PIEZOMETERS AND COLLECTION TRENCH WELLS NOT USED TO CREATE POTENTIOMETRIC SURFACE ARE NOT COMPLETED IN THE UPPER MOST PORTION OF THE SHALLOW AQUIFER



Scale: 1" = 200'



BASE REALIGNMENT AND CLOSURE  
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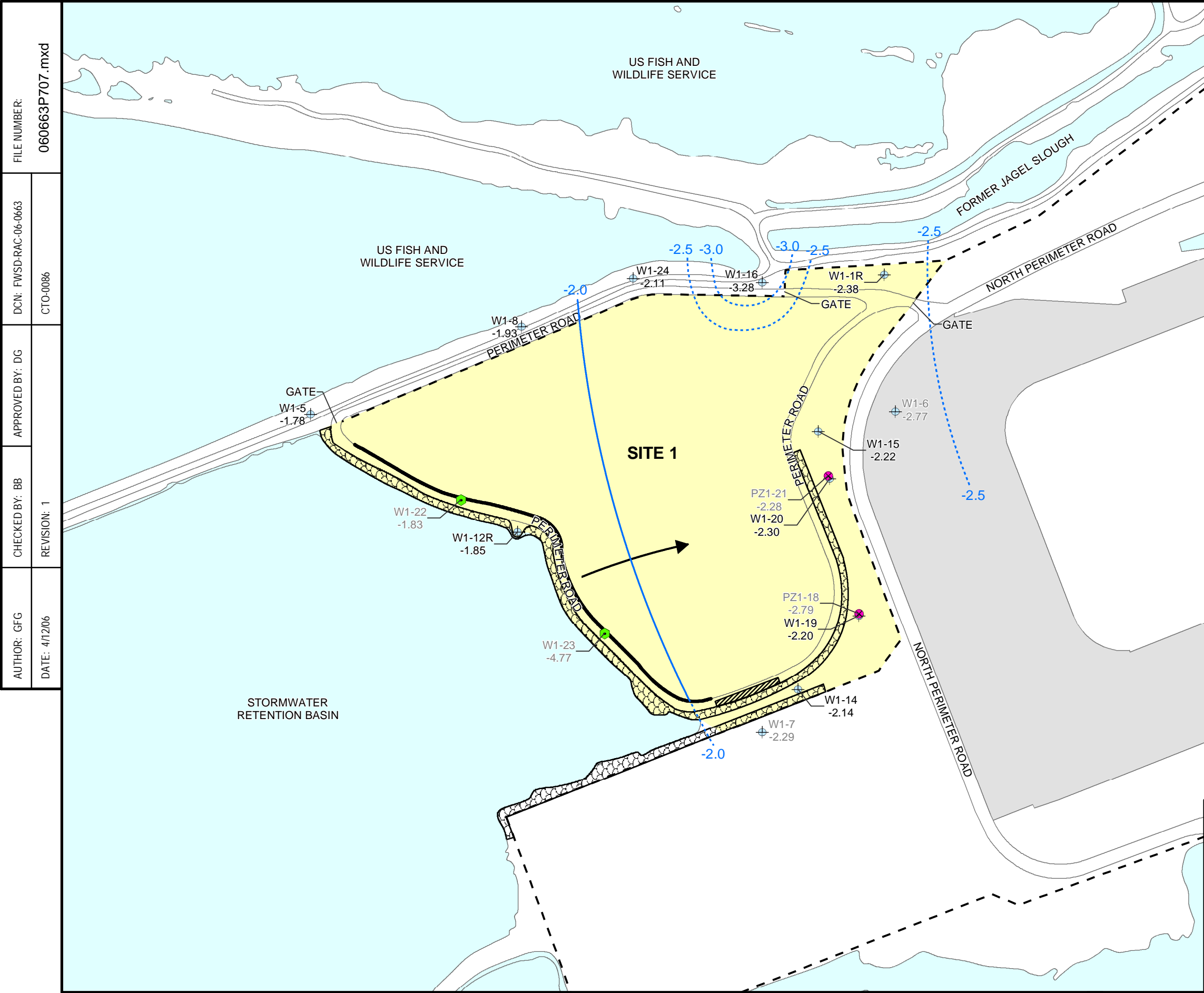
FIGURE 2-2

POTENTIOMETRIC SURFACE, JANUARY 2005

FORMER NAS MOFFETT FIELD  
MOFFETT FIELD, CA



TETRA TECH EC, INC.



LEGEND

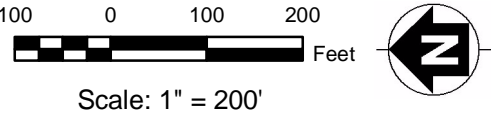
- W1-5 -2.66 GROUNDWATER MONITORING WELL  
GROUNDWATER ELEVATION IN FEET (MSL)
- W1-22 -2.57 COLLECTION TRENCH WELL  
WATER LEVEL NOT USED TO CREATE  
POTENTIOMETRIC SURFACE (a)
- PZ1-18 -2.49 PIEZOMETER  
WATER LEVEL NOT USED TO CREATE  
POTENTIOMETRIC SURFACE (a)
- GENERAL GROUNDWATER FLOW DIRECTION
- INTERPRETED GROUNDWATER ELEVATION  
CONTOURED IN FEET (MSL), DASHED WHERE  
INFERRED. NEGATIVE VALUES ARE BELOW MSL
- GROUNDWATER COLLECTION TRENCH
- ROAD
- SITE SECURITY FENCE
- RIPRAP
- GAS VENTING TRENCH
- RUNWAY
- WATER/WETLAND

NOTES:

GROUNDWATER DEPRESSION AT MONITORING WELL W1-16  
MAY BE DUE TO GAUGING WATER LEVEL PRIOR TO  
STABILIZATION

MSL - MEAN SEA LEVEL

(a) - WATER LEVEL IN MONITORING WELLS, PIEZOMETERS  
AND COLLECTION TRENCH WELLS NOT USED TO  
CREATE POTENTIOMETRIC SURFACE ARE NOT  
COMPLETED IN THE UPPER MOST PORTION OF THE  
SHALLOW AQUIFER



BASE REALIGNMENT AND CLOSURE  
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SITE 1 LANDFILL 2005 ANNUAL REPORT

FIGURE 2-3

POTENTIOMETRIC SURFACE, MARCH 2005

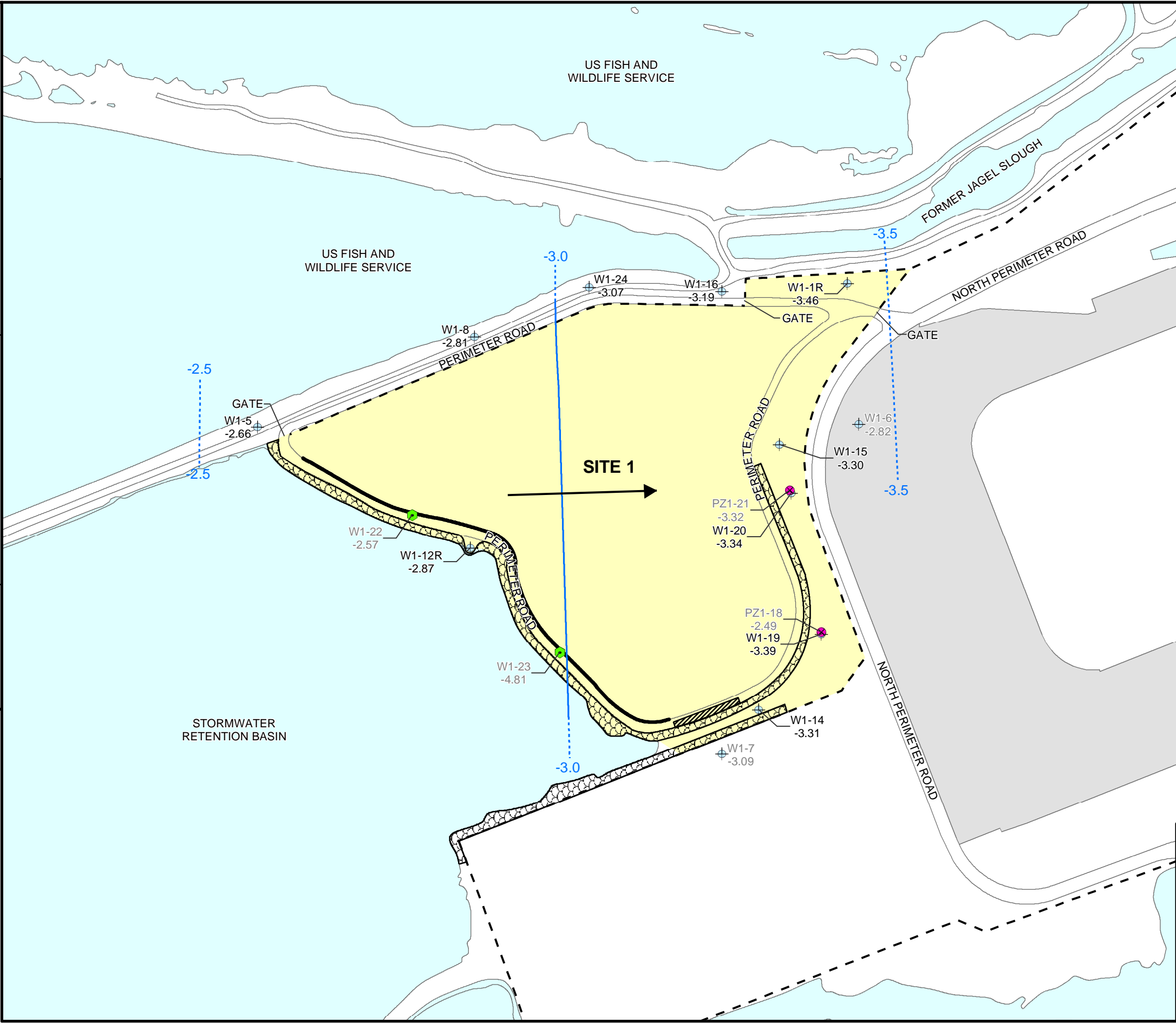
FORMER NAS MOFFETT FIELD  
MOFFETT FIELD, CA

TETRA TECH EC, INC.





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CHECKED BY: BB	REVISION: 1		
AUTHOR: GFG	DATE: 4/12/06		

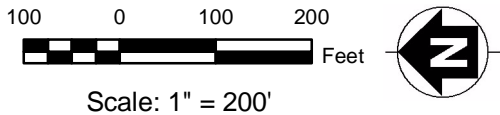


LEGEND

- W1-5 -2.66 GROUNDWATER MONITORING WELL  
GROUNDWATER ELEVATION IN FEET (MSL)
- W1-22 -2.57 COLLECTION TRENCH WELL  
WATER LEVEL NOT USED TO CREATE  
POTENTIOMETRIC SURFACE (a)
- PZ1-18 -2.49 PIEZOMETER  
WATER LEVEL NOT USED TO CREATE  
POTENTIOMETRIC SURFACE (a)
- GENERAL GROUNDWATER FLOW DIRECTION
- 3.0- INTERPRETED GROUNDWATER ELEVATION  
CONTOURED IN FEET (MSL), DASHED WHERE  
INFERRED. NEGATIVE VALUES ARE BELOW MSL
- GROUNDWATER COLLECTION TRENCH
- ROAD
- SITE SECURITY FENCE
- RIPRAP
- GAS VENTING TRENCH
- RUNWAY
- WATER/WETLAND

NOTES:

- MSL - MEAN SEA LEVEL
- (a) - WATER LEVEL IN MONITORING WELLS, PIEZOMETERS  
AND COLLECTION TRENCH WELLS NOT USED TO  
CREATE POTENTIOMETRIC SURFACE ARE NOT  
COMPLETED IN THE UPPER MOST PORTION OF THE  
SHALLOW AQUIFER



<p>BASE REALIGNMENT AND CLOSURE PROGRAM MANAGEMENT OFFICE WEST SAN DIEGO, CA</p>
<p>SITE 1 LANDFILL 2005 ANNUAL REPORT</p> <p>FIGURE 2-5</p> <p>POTENTIOMETRIC SURFACE, OCTOBER 2005</p> <p>FORMER NAS MOFFETT FIELD MOFFETT FIELD, CA</p>

- 0.0005 foot per foot (ft/ft) in January 2005
- 0.0005 ft/ft in March 2005
- 0.0005 ft/ft in April 2005
- 0.0007 ft/ft in October 2005

The water levels in monitoring well pair W1-19/PZ1-18 (see Figure D-17 in Appendix D) show upward potential since 1999 (the water levels in PZ1-18 are higher than in W1-19, and PZ1-18 is completed 11 feet deeper in the A aquifer than W1-19), with the exception of measurements collected on August 18, 2004, and January 31 and March 7, 2005. The water levels in monitoring well pair W1-20/PZ1-21 (see Figure D-18 in Appendix D) show upward potential since 1999 (the water levels in PZ1-21 are higher than in W1-20, and PZ1-21 is completed 11 feet deeper in the A aquifer than W1-20), with the exception of measurements collected on July 12, 1999, January 24, 2000, January 16, 2001, and January 31, 2005. Water levels in the W1-20/PZ1-21 pair have been generally within a couple hundredths of a foot of each other since 1999.

## 2.2 WATER LEVEL TRENDS

Appendix D contains groundwater hydrographs for the 12 monitoring wells and 2 piezometers at the Site 1 Landfill. Some monitoring wells and piezometers show a slight upward (W1-1/1R, W1-12/12R, W1-19, W1-20, PZ1-18, and PZ1-21) or slight downward (W1-16) long-term water level trend, while the remainder of the monitoring wells showed a flat long-term trend. All monitoring wells and piezometers show a seasonal water level variation, with a high-water level elevation near the end of the rainy season (March) and a low-water level elevation near the end of the dry season (October).

The following water level trends were observed in 2005:

- Monitoring wells had seasonal high water levels in March.
- Monitoring wells had seasonal low water levels in October.

The seasonal water level fluctuation was on the order of 1 foot.



### 3.0 GROUNDWATER SAMPLING

Groundwater monitoring at Site 1 was conducted during 2005 in accordance with the *Final Site 1 Landfill Post-Closure Long-Term Monitoring Plan* (Tetra Tech FW, Inc. [TtFW], 2005a) and the *Final Technical Memorandum, Site 1 Groundwater Evaluation Process* (Tech Memo) (TtFW, 2004).

Groundwater samples were collected from nine monitoring wells, as well as from collection trench well W1-22. Collection trench well W1-23 could not be sampled because of insufficient water. Samples were analyzed for the monitoring parameters (MPs). MPs include physical and analytical parameters. The physical MPs are temperature, conductivity, dissolved oxygen, oxidation/reduction potential, pH, and turbidity. The analytical MPs were selected based on Title 27 California Code of Regulations criteria and are described below (TtFW, 2004). Locations for Site 1 groundwater and collection trench sampling are shown in Figure 3-1. Field sampling data sheets for the April and October 2005 groundwater sampling events are included in Appendix A.

Six supplemental groundwater sampling events were conducted in 2004 and two additional supplemental groundwater sampling events were conducted in January and March 2005 to develop the database required for the Tech Memo evaluation of dissolved mercury and the semivolatile organic compounds (SVOCs). Field sampling data sheets for the supplemental groundwater sampling events are included in Appendix A.

#### 3.1 ANALYTICAL RESULTS

Tables B-1 through B-4 in Appendix B of this document present the analytical summary tables for semiannual and supplemental samples collected in 2005. Appendix C of this document presents the validated analytical data (provided on compact disk [CD] only). Analytical testing for 2005 was conducted in accordance with the Tech Memo (TtFW, 2004), as described in the following section.

##### 3.1.1 Analytical Testing

Groundwater samples collected in April and October 2005 at the Site 1 Landfill were analyzed for the following analytical MPs:

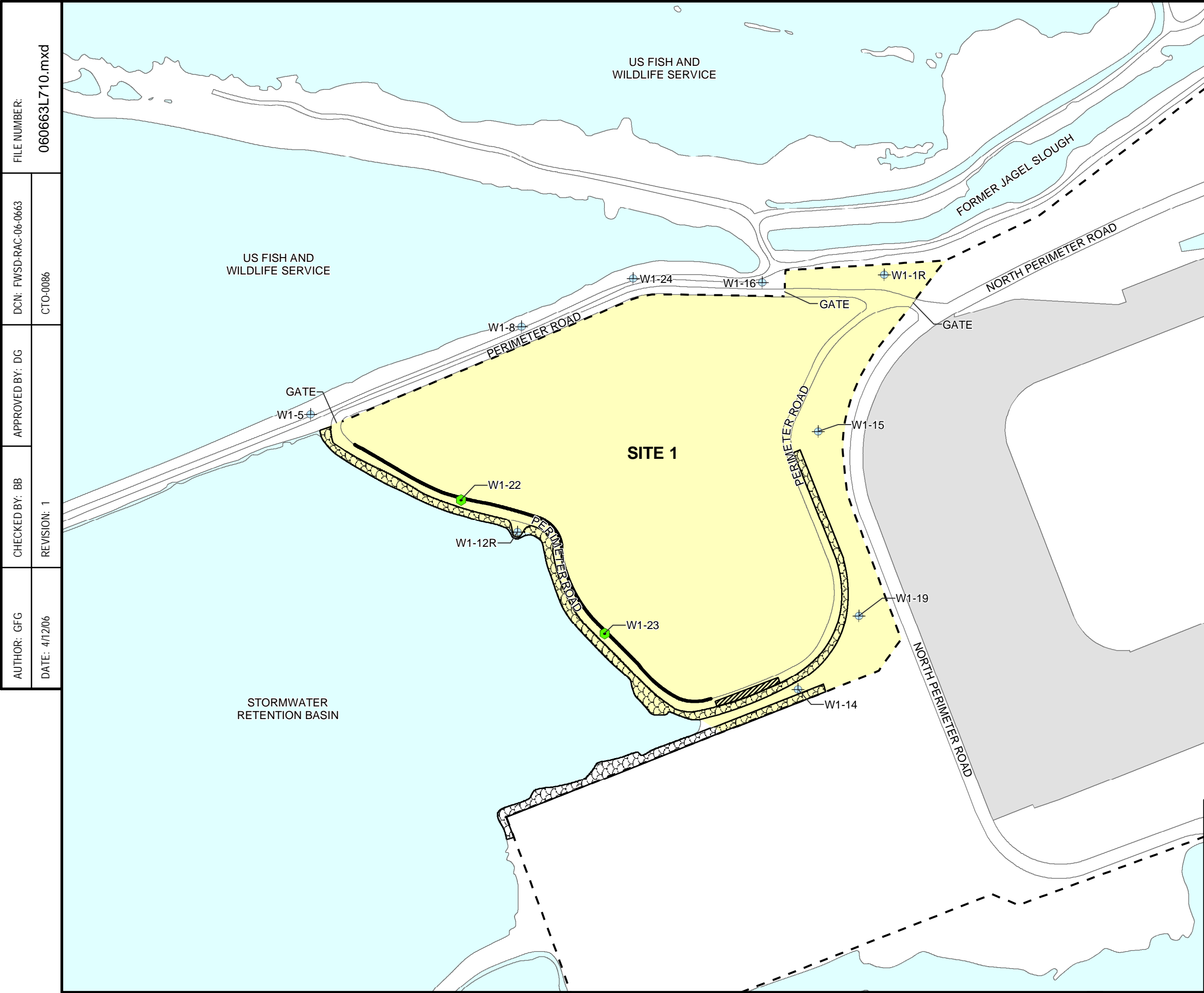
- Volatile organic compounds (VOCs) using United States Environmental Protection Agency (EPA) Method 8260B:
  - M,p-xylene
  - Trichloroethene

- Vinyl chloride
- Pesticides using EPA Method 8081A:
  - Beta-benzene hexachloride
  - Heptachlor
- Dissolved metals using EPA Method 200.8:
  - Arsenic
  - Barium
  - Cobalt
  - Copper
- SVOCs using EPA Method 8270C:
  - 2,4,6-trichlorophenol
  - 2-methylphenol

Supplemental groundwater samples collected in January and March 2005 at the Site 1 Landfill were analyzed for the following:

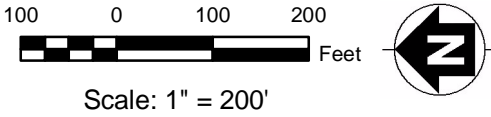
- Dissolved mercury using EPA Method 7470A
- SVOCs using EPA Method 8270C


Twelve samples, including two duplicate samples, were collected from nine groundwater monitoring wells and one collection trench well at the Site 1 Landfill for each of the semiannual sampling events. Eleven samples, including one duplicate sample, were collected from nine groundwater monitoring wells and one collection trench well at the Site 1 Landfill for each of the supplemental sampling events. The analytical results from the collection trench well W1-22 are not considered representative of chemical concentrations of the shallow aquifer. The collection trench wells were not designed to monitor groundwater at the site. The collection trench wells are screened in a collection trench, located on the north side of the landfill, which was installed to protect the adjacent Stormwater Retention Basin. The collection trench wells are shallow and screened in permeable fill material placed in the collection trench. An impermeable barrier was installed on the north side of the collection trench to inhibit groundwater influence. Because of well construction relative to the collection trench and the shallow aquifer, the collection trench wells are not considered to be useful monitoring points for collecting representative samples of groundwater conditions. However, the collection trench wells are sampled at the same frequency as the monitoring wells in accordance with the *Moffett Federal Airfield Final Operable Unit 1 Record of Decision* (Navy, 1997) requirements.



**LEGEND**

W1-5	GROUNDWATER MONITORING WELL
W1-22	COLLECTION TRENCH WELL
[RIPRAP SYMBOL]	RIPRAP
[GAS VENTING TRENCH SYMBOL]	GAS VENTING TRENCH
[GROUNDWATER COLLECTION TRENCH SYMBOL]	GROUNDWATER COLLECTION TRENCH
[ROAD SYMBOL]	ROAD
[SITE SECURITY FENCE SYMBOL]	SITE SECURITY FENCE
[RUNWAY SYMBOL]	RUNWAY
[WATER/WETLAND SYMBOL]	WATER/WETLAND



BASE REALIGNMENT AND CLOSURE PROGRAM MANAGEMENT OFFICE WEST SAN DIEGO, CA	
SITE 1 LANDFILL 2005 ANNUAL REPORT FIGURE 3-1 LOCATIONS FOR SITE 1 GROUNDWATER AND COLLECTION TRENCH SAMPLING FORMER NAS MOFFETT FIELD MOFFETT FIELD, CA	
 <b>TETRA TECH</b> EC, INC.	

AUTHOR: GFG	CHECKED BY: BB	APPROVED BY: DG	DCN: FWSD-RAC-06-0663	FILE NUMBER: 060663L710.mxd
DATE: 4/12/06	REVISION: 1		CTO-0086	

### **3.1.2 Statistical Evaluation**

Table 3-1 presents the MPs and the calculated concentration limits (CCLs), as detailed in the Tech Memo (TiFW, 2004). CCLs were developed based on ecological screening criteria and site-specific attenuation factors for the groundwater. These CCLs are used as initial screening criteria in the groundwater data evaluation. If analytical results are less than the CCLs, then no additional evaluation is required, and there is no release from the landfill. If CCLs are exceeded, then additional evaluation of the upgradient (background) and downgradient data is conducted to determine whether there has been a release from the landfill. If upgradient concentrations are higher than downgradient concentrations, there is no release from the landfill. Conversely, if downgradient concentrations are higher than upgradient concentrations, additional sampling events are conducted and evaluated to determine whether there has been a release from the landfill. Tables 3-2 and 3-3 present the physical MPs and MP analytes detected in groundwater samples from monitoring wells and the collection trench at Site 1 during April and October 2005 sampling events. Tables B-5 and B-6 provide the statistical evaluation summary.

### **3.1.3 Visual Trends**

Appendix E contains groundwater monitoring point data graphs for monitoring wells with at least one detection in 2005, and a total of at least three historical detected concentrations (1999 through 2005). Groundwater monitoring point data graphs are specified in Title 27 California Code of Regulations, Section 20415(e)(14). Trends were determined by visually evaluating the graphs for increasing concentration trends, decreasing concentration trends, or relatively consistent (flat) concentration trends.

Arsenic, barium, cobalt, and copper were all detected at least once in 2005, and each dissolved metal had at least three historical detected concentrations (1999 through 2005) in samples from every Site 1 groundwater monitoring well. In general, arsenic concentrations show a decreasing trend, barium concentrations show a flat trend, cobalt concentrations show a flat to decreasing trend, and copper concentrations show a decreasing trend. All of these metals are found in seawater (Hem, 1971) and are considered part of the composition of natural groundwater at the Site 1 Landfill.

No VOCs, SVOCs, or pesticides were detected in 2005 with a total of at least three historically detected concentrations (1999 through 2005) in samples from a Site 1 groundwater monitoring well. Therefore, no other trends exist.

## **3.2 GROUNDWATER QUALITY EVALUATION**

Results from the 2005 groundwater sampling events are tabulated in Appendix B of this document and summarized below.

### **3.2.1 April 2005 Sampling Event**

During the April 2005 sampling event, the dissolved metal MPs (arsenic, barium, cobalt, and copper) and one pesticide MP (heptachlor) were detected in samples from monitoring wells at concentrations greater than their respective project reporting limits (see Table 3-2). Neither VOC nor SVOC MPs were detected in the April 2005 sampling event. The following details how barium and heptachlor exceeded their respective CCLs:

- The barium CCL was exceeded in samples from every monitoring well. However, all CCL exceedances either occurred in samples from a background well or were less than historical background values, and thus were removed from further consideration.
- Heptachlor was detected in a sample from background monitoring well W1-5. Since the heptachlor CCL was exceeded in a sample from a background well, it was removed from further consideration.

Also during the April 2005 sampling event, the dissolved metal MPs were detected in a sample from trench well W1-22 at concentrations greater than their respective project reporting limits (see Table 3-2). However, the analytical results from the collection trench well are not considered representative of chemical concentrations of the shallow aquifer (see Section 3.1.1).

### **3.2.2 October 2005 Sampling Event**

During the October 2005 sampling event, the dissolved metal MPs (arsenic, barium, cobalt, and copper) and one pesticide MP (heptachlor) were detected in samples from monitoring wells at concentrations greater than their respective project reporting limits (see Table 3-3). No VOC or SVOC MP was detected in the October 2005 sampling event. The following details how barium exceeded its CCL:

- The barium CCL was exceeded in samples from every monitoring well. Barium occurred in samples from a background well or was below historical background values. Thus, it was removed from further consideration.

Also during the October 2005 sampling event, the dissolved metal MPs and one pesticide MP (beta-benzene hexachloride) were detected in samples from trench well W1-22 at concentrations greater than their respective project reporting limits (see Table 3-3). However, the analytical results from the collection trench well are not considered representative of chemical concentrations of the shallow aquifer (see Section 3.1.1).

### **3.2.3 Supplemental Sampling Events**

There were no detections of dissolved mercury or of any SVOC greater than the project reporting limit for the supplemental groundwater samples collected in January and March 2005 (see Tables B-3 and B-4 of Appendix B).

TABLE 3-1

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
MONITORING PARAMETERS AND CALCULATED CONCENTRATION LIMITS  
FORMER NAS MOFFETT FIELD**

MP	MDL <sup>a</sup> (µg/L)	SQL <sup>a</sup> (µg/L)	Calculated Concentration Limit (µg/L)
<b>Metals</b>			
Arsenic	0.22	1	89.64
Barium	0.18	10	40.00
Cobalt	0.2	1	230.00
Copper	0.19	1	5.15
<b>VOCs</b>			
m,p-Xylene	0.3	1	4.11
Trichloroethene	0.2	0.5	9.49
Vinyl chloride	0.2	1	61.95
<b>Pesticides</b>			
beta-BHC	0.01	0.05	340.00
Heptachlor	0.01	0.05	0.36
<b>SVOCs</b>			
2,4,6-Trichlorophenol	5	10	411.28
2-Methylphenol	5	10	11.31

**Note:**

<sup>a</sup> The MDL and SQL are based on the specific analytical methods listed in Section 4.1 of the *Technical Memorandum, Site 1 Groundwater Evaluation Process* (TtFW, 2004). MDLs are likely to change slightly for each analysis, as the MDL depends on both sample and instrument conditions at the time of analysis. For those cases where the CCLs have been made equal to the MDL, the CCL may change slightly for each analysis event.

**Abbreviations and Acronyms:**

µg/L – micrograms per liter  
 BHC – benzene hexachloride  
 CCL - calculated concentration limit  
 MP – monitoring parameter  
 MDL – method detection limit  
 NAS – Naval Air Station  
 SQL – sample quantitation limit  
 SVOC – semivolatile organic compound  
 TtFW – Tetra Tech FW, Inc.  
 VOC – volatile organic compound

TABLE 3-2

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
APRIL 2005 DETECTED ANALYTES IN GROUNDWATER  
FORMER NAS MOFFETT FIELD**

MP	86-S1-108 W1-1R 4/11/05	86-S1-109 W1-15 4/11/05	86-S1-110 W1-19 4/11/05	86-S1-112 W1-14 4/11/05	86-S1-113 W1-12R 4/12/05	86-S1-114 W1-12R (DUP) 4/12/05	86-S1-115 W1-22 <sup>a</sup> 4/12/05	86-S1-116 W1-5 4/12/05	86-S1-117 W1-8 4/12/05	86-S1-118 W1-8 (DUP) 4/12/05	86-S1-119 W1-24 4/13/05	86-S1-120 W1-16 4/13/05
<b>Dissolved Metals ( µg/L)</b>	<b>EPA Method 200.8</b>											
Arsenic	0.834 J	4.61 J	2.2 J	4.54 J	1.55 J	1.63 J	2.76 J	1.05 J	2.09 J	1.77 J	6.35 J	5.43 J
Barium	<b>73.3</b>	<b>145 J</b>	<b>83.8</b>	<b>184</b>	<b>74.3</b>	<b>73.4 J</b>	<b>208</b>	<b>507</b>	<b>130</b>	<b>130 J</b>	<b>218</b>	<b>244</b>
Cobalt	13.5	1.91 J	9.93	6.01	4.67	6.37	4.33	1.28	2.74	2.4 J	6.29	4.99
Copper	0.602 J	0.205 J	0.814 J	0.225 J	0.528 J	0.573 J	0.831 J	0.142 J	0.329 J	0.434 J	0.243 J	0.214 J
<b>Pesticides ( µg/L)</b>	<b>EPA Method 8081A</b>											
Heptachlor	0.047 U	0.048 U	0.047 U	0.047 U	0.053 U	0.047 U	0.047 U	<b>1.2</b>	0.048 U	0.047 U	0.048 U	0.048 U
<b>Field Measurements</b>												
DO (mg/L)	0.09	0.04	0.05	0.1	0.14	-	0.09	0.1	0.09	-	0.15	0.11
pH	6.8	6.9	6.9	7	7.1	-	7	7.1	7.3	-	7.1	6.9
ORP (mV)	316	37	186	104	242	-	100	96	256	-	-97	-123
Temperature (°C)	22.8	24.5	22.8	21.2	13.9	-	22.6	24.1	21.8	-	16.4	18.6
Conductivity (µmhos/cm)	86170	60919	85611	80166	49547	-	27540	72228	76714	-	54692	60787
Turbidity (NTU)	0.75	6.4	1.3	2.9	12	-	2.2	5.9	1.9	-	5.8	3.2

**Notes:**

<sup>a</sup> – Well W1-22 is a collection trench well not representative of groundwater at Site 1.

Shading indicates concentration above the calculated concentration limit.

**Abbreviations and Acronyms:**

µg/L – micrograms per liter

µmhos/cm – micromhos per centimeter

°C – degrees Celsius

DO – dissolved oxygen

DUP – duplicate sample

EPA – United States Environmental Protection Agency

J – estimated value

mg/L – milligrams per liter

MP – monitoring parameter

mV – millivolts

NAS – Naval Air Station

NTU – nephelometric turbidity unit

ORP – oxidation/reduction potential

pH – hydrogen (ion) concentration

U – analyte not detected above project reporting limit

TABLE 3-3

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
OCTOBER 2005 DETECTED ANALYTES IN GROUNDWATER  
FORMER NAS MOFFETT FIELD**

MP	86-S1-124 W1-1R 10/4/05	86-S1-125 W1-15 10/4/05	86-S1-126 W1-19 10/6/05	86-S1-128 W1-14 10/6/05	86-S1-129 W1-12R 10/6/05	86-S1-130 W1-22 <sup>a</sup> 10/6/05	86-S1-131 W1-5 10/6/05	86-S1-132 W1-5 (DUP) 10/6/05	86-S1-133 W1-8 10/6/05	86-S1-134 W1-8 (DUP) 10/6/05	86-S1-135 W1-24 10/6/05	86-S1-136 W1-16 10/6/05
<b>Dissolved Metals ( µg/L)</b>	<b>EPA Method 200.8</b>											
Arsenic	1.61	4.47	2.97	5.28	2.53	1.93	0.95	1.95 J	3.86	4.33 J	7.25	7.72
Barium	107	176	99.9	159	72	1260	576	556 J	150	150 J	398	458
Cobalt	7.69 J	3.32 J	9.69 J	8.34 J	5.25 J	0.36 J	1.73 J	2.99 J	2.27 J	2.28 J	2.87 J	7.28 J
Copper	2.64 J	0.1 J	0.494 J	0.075 J	0.205 J	0.135 J	0.031 J	0.06 J	0.099 J	0.093 J	0.14 J	0.125 J
<b>Pesticides ( µg/L)</b>	<b>EPA Method 8081A</b>											
beta-BHC	0.048 U	0.048 U	0.047 U	0.047 U	0.049 U	0.25	0.05 U	0.048 U	0.048 U	0.047 U	0.05 U	0.049 U
Heptachlor	0.048 U	0.048 U	0.047 U	0.047 U	0.02 J	0.049 U	0.05 U	0.048 U	0.048 U	0.047 U	0.05 U	0.049 U
<b>Field Measurements</b>												
DO (mg/L)	0.2	0.26	0.26	0.23	0.13	0.1	0.11	-	0.11	-	0.2	0.11
pH	6.5	6.7	6.6	6.7	6.5	6.3	6.5	-	6.7	-	6.5	6.5
ORP (mV)	316	-32	185	74	164	37	63	-	59	-	8	17
Temperature (°C)	20.6	21.2	15.6	18.3	19.9	23.4	23.2	-	22.8	-	20.5	21
Conductivity (µmhos/cm)	69802	64824	68499	67110	68690	43570	57874	-	60648	-	60221	64722
Turbidity (NTU)	0	6.4	1.8	2.6	21.2	15	2.6	-	8.9	-	6.3	14.1

**Notes:**

<sup>a</sup> – Well W1-22 is a collection trench well not representative of groundwater at Site 1.

Shading indicates concentration above the calculated concentration limit.

**Abbreviations and Acronyms:**

µg/L – micrograms per liter

µmhos/cm – micromhos per centimeter

°C – degrees Celsius

BHC – benzene hexachloride

DO – dissolved oxygen

DUP – duplicate sample

EPA – United States Environmental Protection Agency

J – estimated value

mg/L – milligrams per liter

MP – monitoring parameter

mV – millivolts

NAS – Naval Air Station

NTU – nephelometric turbidity unit

ORP – oxidation/reduction potential

pH – hydrogen (ion) concentration

U – analyte not detected above project reporting limit



## **4.0 METHANE MONITORING**

As part of landfill monitoring activities, methane monitoring was conducted for 19 passive gas vent (GV) wells within the Site 1 Landfill and 4 landfill gas monitoring wells (LGMW) on the perimeter of the landfill. Methane monitoring was also performed at the perimeter of the site at 150-foot intervals at 21 locations. The monitoring program was conducted in accordance with Section 4 of the *Final Site 1 Landfill Post-Closure Long-Term Monitoring Plan* (Tetra Tech FW, Inc., 2005a). The monitoring program was conducted in April and October 2005, using a Landtec GA 90 portable methane monitor. Methane monitoring locations are shown in Figure 4-1.

### **4.1 LANDFILL GAS MONITORING WELL AND GAS VENT RESULTS**

The results of LGMW and GV monitoring are shown in Table 4-1. In general, the percentages of methane gas concentrations within the landfill were slightly lower in October 2005 than in April 2005, and are similar to historical concentrations. Methane concentrations were highest in April 2005, near the northern portion of the landfill (GV-7 at 42.3 percent), followed by a detected concentration of 36.0 percent in GV-11, which is near the center of the landfill. None of the perimeter wells (LGMW1-1 through LGMW1-4) showed concentrations of methane above the concentration limit of 5 percent (all readings were zero percent), as specified in Title 27 California Code of Regulations, Section 20921(a)(2) and as identified in the *Moffett Federal Airfield Final Operable Unit 1 Record of Decision* (Department of the Navy, 1997). Appendix F contains methane monitoring data graphs for the 19 GV wells and the 4 LGMWs.

### **4.2 PERIMETER GAS MONITORING RESULTS**

Perimeter monitoring points (P-1 through P-21) are located along the perimeter fence line at approximate 150-foot intervals. Methane was not detected at any of the perimeter monitoring locations in April or October 2005.



**TABLE 4-1**

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
2005 LANDFILL GAS MONITORING WELL AND  
GAS VENT METHANE MONITORING RESULTS  
FORMER NAS MOFFETT FIELD**

Monitoring Location	Percent Methane <sup>1</sup>	
	April 18, 2005	October 7, 2005
GV-1	0.5	0.1
GV-2	0.0	0.0
GV-3	0.0	0.0
GV-4	0.0	0.0
GV-5	0.0	4.8
GV-6	23.0	2.6
GV-7	42.3	38.6
GV-8	32.1	24.8
GV-9	0.0	0.0
GV-10	1.4	1.0
GV-11	36.0	3.5
GV-12	12.9	0.0
GV-13	0.0	0.0
GV-14	0.0	0.0
GV-15	0.0	0.0
GV-16	0.0	0.0
GV-17	0.0	0.0
GV-18	0.0	0.0
GV-19	0.0	0.0
LGMW1-1	0.0	0.0
LGMW1-2	0.0	0.0
LGMW1-3	0.0	0.0
LGMW1-4	0.0	0.0

**Notes:**

<sup>1</sup> - Methane concentrations were measured using a Landtec GA 90 portable methane meter. Accuracy is  $\pm 0.3\%$  by volume at 5% concentration, and  $\pm 1.9\%$  by volume at 60% concentration.

**Abbreviations and Acronyms:**

GV – gas vent

LGMW – landfill gas monitoring well

NAS - Naval Air Station

## 5.0 CONCLUSIONS

Depth-to-groundwater measurements were collected from Site 1 Landfill monitoring wells, piezometers, and collection trench wells on:

- January 31, 2005
- March 7, 2005
- April 11, 2005
- October 3, 2005

Groundwater elevations for all Site 1 Landfill measurements were below sea level for 2005. In general, the groundwater elevations were similar to previous years. The groundwater flows from north to south at the Site 1 Landfill. The gradient from north to south was approximately:

- 0.0005 foot per foot (ft/ft) in January 2005
- 0.0005 ft/ft in March 2005
- 0.0005 ft/ft in April 2005
- 0.0007 ft/ft in October 2005

The following water level trends were observed in 2005:

- Monitoring wells had seasonal high water levels in March.
- Monitoring wells had seasonal low water levels in October.

The seasonal water level fluctuation was on the order of approximately 1 foot.

The water levels in monitoring well pairs W1-19/PZ1-18 and W1-20/PZ1-21 generally show upward potential since 1999.

Dissolved metal monitoring parameters (MPs) were detected at least once in 2005. Historically detected concentrations since 1999 generally show a decreasing trend for arsenic, a flat trend for barium, a flat to decreasing trend for cobalt, and a decreasing for copper. All of these metals are found in seawater (Hem, 1971) and are considered part of the composition of natural groundwater at the Site 1 Landfill.

No volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), or pesticides were detected in 2005 with a total of at least three historically detected concentrations (1999 through 2005) in samples from a Site 1 groundwater monitoring well. Therefore, no other trends exist.

During the April 2005 sampling event, the dissolved metal MPs and one pesticide MP (heptachlor) were detected in samples from monitoring wells at concentrations greater than their respective project reporting limits. Only concentrations of barium and heptachlor exceeded their respective calculated concentrations limits (CCLs). Barium was removed from further consideration due to the CCL exceedances occurring in samples from a background well or exceedances were less than historical background values. Heptachlor was also removed from further consideration due the CCL exceedance occurring in a sample from a background well. Neither VOC nor SVOC MPs were detected in the April 2005 sampling event.

During the October 2005 sampling event, the dissolved metal MPs and one pesticide MP (heptachlor) were detected at concentrations greater than their respective project reporting limits. Only concentrations of barium exceeded its CCL. Barium was removed from further consideration due to the CCL exceedances occurring in samples from a background well or exceedances were less than historical background values. Neither VOC nor SVOC MPs were detected in the October 2005 sampling event.

There were no detections of dissolved mercury or of any SVOC at concentrations greater than the project reporting limit for the supplemental groundwater samples collected in January and March 2005.

Analytical results obtained throughout 2005 indicate that there has not been a release from the landfill to groundwater.

As part of landfill monitoring activities, methane monitoring was conducted at the Site 1 Landfill. In general, the percentages of methane gas concentrations within the landfill were slightly lower in October 2005 than in April 2005 and were similar to historical concentrations. Methane was not detected at any of the perimeter monitoring locations in April or October 2005. No landfill gas is migrating off site.

As part of landfill maintenance activities, the landfill is routinely inspected and repaired, as necessary. The landfill cover is intact and functional.

## 6.0 REFERENCES

- Department of the Navy. 1997. *Moffett Federal Airfield Final Operable Unit 1 Record of Decision*. Moffett Federal Airfield, Moffett Field, California. August 1.
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- Hem, John D. 1971. *Study and Interpretation of the Chemical Characteristics of Natural Water*. Geological Survey Water-Supply Paper 1473. Second Edition.
- International Technology Corporation. 1993. *Remedial Investigation Report, Operable Unit 1, Landfill Sites 1 and 2*. NAS Moffett Field. March.
- Tetra Tech EM, Inc. 2000. *Draft Northern Channel Physical Characterization Report*. February.
- Tetra Tech FW, Inc. (TtFW). 2004. *Final Technical Memorandum, Site 1 Groundwater Evaluation Process*. April 8.
- \_\_\_\_\_. 2005a. *Final Site 1 Landfill Post-Closure Long-Term Monitoring Plan*. March 18.
- \_\_\_\_\_. 2005b. *Final Site 1 Landfill Post-Closure Long-Term Maintenance Plan*. March 18.

# **APPENDIX A**

## **FIELD SAMPLING DATA**

## **SEMIANNUAL SAMPLING**



**APRIL 2005**



# LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Page 1 of 1Date 04-11-05

Well Name <u>W1-1R</u>	Screen Interval <u>14.3 - 24.3</u>	Station Elevation <u>GND</u> TOC <u>      </u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>Site 1 gw (semi-annual)</u>	Static Water Level (from TOC) / Time <u>7.50/0823</u> <u>7.50/0824</u> <u>7.51/0825</u>	Average Water Level (from TOC) <u>7.50</u>	
Project No. <u>1990.086E</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>0</u>	
Well Location <u>Site 1</u>	Reference Elevation <u>      </u>	PID Reading (TOC) <u>0</u>	
Sample Date <u>04-11-05</u>	Static Elevation <u>      </u>	Notes <u>      </u>	
Sampling Personnel <u>Ogle</u>	Well Depth MEAS <u>27.46</u> RPTD <u>      </u>	Feet of Water <u>      </u>	
<u>Ramos</u>	Depth of Bottom of Tubing <u>19.3</u>		
Sample ID <u>86-S1-108</u>	Depth to Water (w/ Tubing in Well) <u>7.48</u>		
Duplicate ID <u>      </u>			

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
0834	.24	.13	6.8	321	21.9	87401	2.5	.2			7.51	
0837	.24	.11	6.8	321	22.1	87428	2.4	.5			7.51	
0840	.24	.11	6.8	320	22.4	86990	2.2	.7			7.52	
0843	.24	.11	6.8	318	22.6	86891	1.6	.9			7.52	
0846	.24	.10	6.8	317	22.5	86570	.9	1.0			7.50	
0849	.24	.10	6.8	317	22.7	86421	.8	1.2			7.50	
0852	.24	.09	6.8	315	22.8	86180	.75	1.4			7.51	
0855	.24	.09	6.8	316	22.8	86170	.75	1.5			7.51	
0858	WELL STABILIZED - SAMPLES SECURED											

### Notes:

1. Purge rate = 0.2 - 0.5 L/minute
2. Drawdown shall be <0.33 foot

### SAMPLE PARAMETERS

VOCs	SVOCs	PCBs	Pesticides	Dis. Metals	Dis. Mercury		
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### SAMPLE RATE

.1L/min	.4L/min	.4L/min	.4L/min	.4L/min	.4L/min		
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### Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks: samples effervesced in voas

### FIELD EQUIPMENT

pH Meter <u>Hydrolab</u>	Serial Number <u>#R41906</u>	Number of Bottles <u>3X40ml, 6X1L amber,</u>
Temperature Meter <u>Hydrolab</u>	Serial Number <u>#R41906</u>	<u>1X1L Poly, 1X250ml poly</u>
Turbidity Meter <u>Lamotte</u>	Serial Number <u>      </u>	Field Notebook <u>      </u>
Spec. Elec. Cond. Meter <u>Hydrolab</u>	Serial Number <u>#R41906</u>	Sample Method <u>Low Flow</u>
ORP Meter <u>Hydrolab</u>	Serial Number <u>#R41906</u>	
D.O. Meter <u>Hydrolab</u>	Serial Number <u>#R41906</u>	
Interface Probe <u>Solinst</u>	Serial Number <u>#27582</u>	
PID/OVA <u>Mini-Rae</u>	Serial Number <u>#00320</u>	
Pump <u>Geo-Pump</u>	Serial Number <u>BA0041</u>	
Filter Apparatus <u>Geo - .45 Micron</u>		Discharge Water Containerized <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No



# LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Page 1 of 1Date 04-11-05

Well Name <u>W1-5</u>	Screen Interval <u>14.5-19.5</u>	Station Elevation <u>GND</u> TOC <u>    </u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>Site 1 gw (semi-annual)</u>	Static Water Level (from TOC) / Time <u>5.11/1325</u> <u>5.13/1326</u> <u>5.13/1327</u>		
Project No. <u>1990.086E</u>	Average Water Level (from TOC) <u>5.12</u>		
Well Location <u>Site 1</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>0</u>	
Sample Date <u>04-12-05</u>	Reference Elevation <u>    </u>	PID Reading (TOC) <u>0</u>	
Sampling Personnel <u>Ogle</u>	Static Elevation <u>    </u>	Notes <u>    </u>	
<u>Ramos</u>	Well Depth MEAS <u>21.30</u> RPTD <u>    </u>	Feet of Water <u>    </u>	
Sample ID <u>86-S1-116</u>	Depth of Bottom of Tubing <u>17.0</u>		
Duplicate ID <u>    </u>	Depth to Water (w/ Tubing in Well) <u>5.10</u>		

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
1400	.4	.43	7.2	274	25.8	72408	8.2	.25			5.0	
1403	.4	.20	7.2	174	24.9	71223	5.6	.55			5.1	
1406	.4	.18	7.2	137	24.5	71686	3.7	.8			5.1	
1409	.4	.16	7.2	128	24.4	71644	3.6	1.05			5.1	
1412	.4	.10	7.2	113	24.4	71988	3.7	1.3			5.2	
1415	.4	.12	7.2	101	24.3	72124	3.8	1.55			5.2	
1418	.4	.10	7.1	98	24.1	72128	6.0	1.8			5.3	
1421	.4	.10	7.1	97	24.0	72298	5.9	2.0			5.3	
1424	.4	.10	7.1	96	24.1	72238	5.9	2.3			5.3	
1427	WELL STABLE - SAMPLING											

### Notes:

1. Purge rate = 0.2 - 0.5 L/minute
2. Drawdown shall be <0.33 foot

### SAMPLE PARAMETERS

VOCs	SVOCs	PCBs	Pesticides	Dis. Metals	Dis. Mercury		
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### SAMPLE RATE

.1L/min	.4L/min	.4L/min	.4L/min	.4L/min	.4L/min		
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### Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks: Slight turbidity throughout sampling - VOC samples effervesced.

### FIELD EQUIPMENT

pH Meter <u>Hydrolab</u>	Serial Number <u>#R41906</u>	Number of Bottles <u>3X40ml, 6X1L amber,</u>
Temperature Meter <u>Hydrolab</u>	Serial Number <u>#R41906</u>	<u>1X1L Poly, 1X250ml poly</u>
Turbidity Meter <u>Lamotte</u>	Serial Number <u>    </u>	
Spec. Elec. Cond. Meter <u>Hydrolab</u>	Serial Number <u>#R41906</u>	Field Notebook <u>    </u>
ORP Meter <u>Hydrolab</u>	Serial Number <u>#R41906</u>	
D.O. Meter <u>Hydrolab</u>	Serial Number <u>#R41906</u>	Sample Method <u>Low Flow</u>
Interface Probe <u>Solinst</u>	Serial Number <u>#27582</u>	
PID/OVA <u>Mini-Rae</u>	Serial Number <u>#00320</u>	
Pump <u>Geo-Pump</u>	Serial Number <u>8A0041</u>	
Filter Apparatus <u>Geo - .45 Micron</u>		Discharge Water Containerized <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No



# LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Page 1 of 1Date 04-11-05

Well Name <u>W1-8</u>	Screen Interval <u>13 - 18</u>	Station Elevation <u>GND</u> TOC <u>      </u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>Site 1 gw (semi-annual)</u>	Static Water Level (from TOC) / Time <u>5.05/1435</u> <u>5.04/1436</u> <u>5.05/1437</u>		
Project No. <u>1990.086E</u>	Average Water Level (from TOC) <u>5.05</u>		
Well Location <u>Site 1</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>0</u>	
Sample Date <u>04-12-05</u>	Reference Elevation <u>      </u>	PID Reading (TOC) <u>0</u>	
Sampling Personnel <u>Ogle</u>	Static Elevation <u>      </u>	Notes <u>      </u>	
<u>Ramos</u>	Well Depth MEAS <u>22.78</u> RPTD <u>      </u>	Feet of Water <u>      </u>	
Sample ID <u>86-S1-117</u>	Depth of Bottom of Tubing <u>15.5</u>		
Duplicate ID <u>86-S1-118</u>	Depth to Water (w/ Tubing in Well) <u>5.00</u>		

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
1540	.4	.46	7.4	287	21.7	76730	3.0	.25			5.01	
1543	.4	.21	7.4	280	21.7	76720	3.2	.5			5.01	
1546	.4	.20	7.4	271	21.8	76724	3.1	.8			5.10	
1549	.4	.10	7.3	260	21.8	76728	1.9	1.1			5.10	
1552	.4	.10	7.3	257	21.8	76715	2.1	1.3			5.10	
1555	.4	.09	7.3	256	21.8	76714	1.9	1.5			5.00	
1558	WELL STABLE - SAMPLING											

### Notes:

1. Purge rate = 0.2 - 0.5 L/minute
2. Drawdown shall be <0.33 foot

## SAMPLE PARAMETERS

VOCs	SVOCS	PCBs	Pesticides	Dis. Metals	Dis. Mercury		
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## SAMPLE RATE

.1L/min	.4L/min	.4L/min	.4L/min	.4L/min	.4L/min		
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### Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks: Slight green color - Slight H2S odor. VOC samples effervesced.

## FIELD EQUIPMENT

pH Meter <u>Hydrolab</u>	Serial Number <u>#R41906</u>	Number of Bottles <u>3X40ml, 6X1L amber,</u>
Temperature Meter <u>Hydrolab</u>	Serial Number <u>#R41906</u>	<u>1X1L Poly, 1X250ml poly</u>
Turbidity Meter <u>Lamotte</u>	Serial Number <u>      </u>	
Spec. Elec. Cond. Meter <u>Hydrolab</u>	Serial Number <u>#R41906</u>	Field Notebook <u>      </u>
ORP Meter <u>Hydrolab</u>	Serial Number <u>#R41906</u>	
D.O. Meter <u>Hydrolab</u>	Serial Number <u>#R41906</u>	Sample Method <u>Low Flow</u>
Interface Probe <u>Solinst</u>	Serial Number <u>#27582</u>	
PID/OVA <u>Mini-Rae</u>	Serial Number <u>#00320</u>	
Pump <u>Geo-Pump</u>	Serial Number <u>BA0041</u>	
Filter Apparatus <u>Geo - .45 Micron</u>		Discharge Water Containerized <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No



# LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Page 1 of 1Date 04-11-05

Well Name <u>W1-12R</u>	Screen Interval <u>15-25</u>	Station Elevation <u>GND</u>	TOC <u>      </u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>Site 1 gw (semi-annual)</u>	Static Water Level (from TOC) / Time <u>2.29/0800</u>	<u>2.30/0801</u>	<u>2.33/0802</u>	
Project No. <u>1990.086E</u>	Average Water Level (from TOC) <u>2.31</u>			
Well Location <u>Site 1</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>0</u>		
Sample Date <u>04-12-05</u>	Reference Elevation <u>      </u>	PID Reading (TOC) <u>0</u>		
Sampling Personnel <u>Ogle</u>	Static Elevation <u>      </u>	Notes <u>      </u>		
<u>Ramos</u>	Well Depth MEAS <u>25.78</u>	RPTD <u>      </u>	Feet of Water <u>      </u>	
Sample ID <u>86-S1-113</u>	Depth of Bottom of Tubing <u>20</u>			
Duplicate ID <u>86-S1-114</u>	Depth to Water (w/ Tubing in Well) <u>2.30</u>			

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	EH/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
0828	.4	.60	7.1	354	12.8	58818	38	.25			2.32	
0831	.4	.36	7.1	326	12.8	56006	30	.50			2.34	
0834	.4	.25	7.1	308	12.8	54424	22	.80			2.34	
0837	.4	.23	7.1	289	13.0	54004	20	1.0			2.34	
0840	.4	.21	7.2	275	13.0	53440	18	1.25			2.33	
0843	.4	.19	7.1	261	13.4	51592	15	1.5			2.34	
0846	.4	.17	7.1	253	13.6	50669	16	1.75			2.34	
0849	.4	.15	7.1	246	13.8	49972	12	2.0			2.34	
0852	.4	.15	7.1	244	13.9	49861	12	2.3			2.33	
0855	.4	.14	7.1	242	13.9	49547	12	2.5			2.32	
0858	WELL STABLE - SAMPLING											

### Notes:

1. Purge rate = 0.2 - 0.5 L/minute
2. Drawdown shall be <0.33 foot

### SAMPLE PARAMETERS

VOCs	SVOCs	PCBs	Pesticides	Dis. Metals	Dis. Mercury		
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### SAMPLE RATE

.1L/min	.4L/min	.4L/min	.4L/min	.4L/min	.4L/min		
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### Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks: Slight turbidity - slight H2S odor - samples effervesced in voas

### FIELD EQUIPMENT

pH Meter <u>Hydrolab</u>	Serial Number <u>#R41906</u>	Number of Bottles <u>3X40ml, 6X1L amber,</u>
Temperature Meter <u>Hydrolab</u>	Serial Number <u>#R41906</u>	<u>1X1L Poly, 1X250ml poly</u>
Turbidity Meter <u>Lamotte</u>	Serial Number <u>      </u>	
Spec. Elec. Cond. Meter <u>Hydrolab</u>	Serial Number <u>#R41906</u>	Field Notebook <u>      </u>
ORP Meter <u>Hydrolab</u>	Serial Number <u>#R41906</u>	
D.O. Meter <u>Hydrolab</u>	Serial Number <u>#R41906</u>	Sample Method <u>Low Flow</u>
Interface Probe <u>Solinst</u>	Serial Number <u>#27582</u>	
PID/OVA <u>Mini-Rae</u>	Serial Number <u>#00320</u>	
Pump <u>Geo-Pump</u>	Serial Number <u>BA0041</u>	
Filter Apparatus <u>Geo - .45 Micron</u>		Discharge Water Containerized <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Date 04-11-05

Well Name <u>W1-14</u>	Screen Interval <u>4.1-14.1</u>	
Project <u>Site 1 gw (semi-annual)</u>	Station Elevation <u>GND</u> TOC <u>      </u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project No. <u>1990.086E</u>	Static Water Level (from TOC) / Time <u>4.80/1455</u> <u>4.81/1456</u> <u>4.83/1457</u>	
Well Location <u>Site 1</u>	Average Water Level (from TOC) <u>4.81</u>	
Sample Date <u>04-11-05</u>	Reference Point <u>      </u> TOC <u>      </u>	PID Readings (background) <u>0</u>
Sampling Personnel <u>Ogle</u>	Reference Elevation <u>      </u>	PID Reading (TOC) <u>0</u>
<u>Ramos</u>	Static Elevation <u>      </u>	Notes <u>      </u>
	Well Depth MEAS <u>17.7</u> RPTD <u>      </u>	Feet of Water <u>      </u>
Sample ID <u>86-S1-112</u>	Depth of Bottom of Tubing <u>9.1</u>	
Duplicate ID <u>      </u>	Depth to Water (w/ Tubing in Well) <u>4.80</u>	

## PURGING

[illegible]

**Notes:**

1. Purge rate = 0.2 - 0.5 L/minute
2. Drawdown shall be <0.33 foot.

### SAMPLE PARAMETERS

VOCs	SVOCs	PCBs	Pesticides	Dis. Metals	Dis. Mercury		
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### SAMPLE RATE

.1L/min	.4L/min	.4L/min	.4L/min	.4L/min	.4L/min		
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**Notes:**

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: Good

Remarks: Slight turbidity - samples effervesced in voas

## FIELD EQUIPMENT

pH Meter	Hydrolab	Serial Number	#R41906	Number of Bottles	3X40ml, 6X1L amber, _____
Temperature Meter	Hydrolab	Serial Number	#R41906		1X1L Poly, 1X250ml poly
Turbidity Meter	Lamotte	Serial Number			
Spec. Eiec. Cond. Meter	Hydrolab	Serial Number	#R41906	Field Notebook	
ORP Meter	Hydrolab	Serial Number	#R41906		
D.O. Meter	Hydrolab	Serial Number	#R41906	Sample Method	Low Flow
Interface Probe	Solinst	Serial Number	#27582		
PiD/OVA	Mini-Rae	Serial Number	#00320		
Pump	Geo-Pump	Serial Number	BA0041		
Filter Apparatus	Geo - .45 Micron			Discharge Water Containerized	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No



# LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Page 1 of 1Date 04-11-05

Well Name <u>W1-15</u>	Screen Interval <u>4.4 - 14.4</u>	Station Elevation <u>GND</u> TOC <u>      </u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>Site 1 gw (semi-annual)</u>	Static Water Level (from TOC) / Time <u>5.13/0954</u> <u>5.14/0955</u> <u>5.14/0956</u>	Average Water Level (from TOC) <u>5.14</u>	
Project No. <u>1990.086E</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>0</u>	
Well Location <u>Site 1</u>	Reference Elevation <u>      </u>	PID Reading (TOC) <u>0</u>	
Sample Date <u>04-11-05</u>	Static Elevation <u>      </u>	Notes <u>      </u>	
Sampling Personnel <u>Ogle</u>	Well Depth MEAS <u>17.77</u> RPTD <u>      </u>	Feet of Water <u>      </u>	
<u>Ramos</u>	Depth of Bottom of Tubing <u>9.4</u>		
Sample ID <u>86-S1-109</u>	Depth to Water (w/ Tubing in Well) <u>5.10</u>		
Duplicate ID <u>      </u>			

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
1002	.4	.24	6.9	274	25.4	54092	3.4	.2			5.14	
1005	.4	.10	6.8	79	25.1	55252	15	.5			5.14	
1008	.4	.08	6.8	76	24.7	55912	9.9	.7			5.14	
1011	.4	.06	6.8	46	24.3	57362	7.8	1.0			5.12	
1014	.4	.05	6.9	23	24.3	61921	9.3	1.3			5.10	
1017	.4	.05	6.9	24	24.1	61912	8.1	1.5			5.12	
1020	.4	.04	6.9	33	24.4	61994	7.6	1.7			5.12	
1023	.4	.04	6.9	32	24.5	60311	5.9	1.9			5.12	
1026	.4	.04	6.9	37	24.5	60919	6.4	2.2			5.12	
1029	WELL STABLE - SAMPLES SECURED											

Notes:

1. Purge rate = 0.2 - 0.5 L/minute

2. Drawdown shall be &lt;0.33 foot

## SAMPLE PARAMETERS

VOCs	SVOCs	PCBs	Pesticides	Dis. Metals	Dis. Mercury		
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## SAMPLE RATE

.1L/min	.4L/min	.4L/min	.4L/min	.4L/min	.4L/min		
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Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute

2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks: samples effervesced in voas

## FIELD EQUIPMENT

pH Meter <u>Hydrolab</u>	Serial Number <u>#R41906</u>	Number of Bottles <u>3X40ml, 6X1L amber,</u>
Temperature Meter <u>Hydrolab</u>	Serial Number <u>#R41906</u>	<u>1X1L Poly, 1X250ml poly</u>
Turbidity Meter <u>Lamotte</u>	Serial Number <u>      </u>	Field Notebook <u>      </u>
Spec. Elec. Cond. Meter <u>Hydrolab</u>	Serial Number <u>#R41906</u>	Sample Method <u>Low Flow</u>
ORP Meter <u>Hydrolab</u>	Serial Number <u>#R41906</u>	
D.O. Meter <u>Hydrolab</u>	Serial Number <u>#R41906</u>	
Interface Probe <u>Solinst</u>	Serial Number <u>#27582</u>	
PID/OVA <u>Mini-Rae</u>	Serial Number <u>#00320</u>	
Pump <u>Geo-Pump</u>	Serial Number <u>BA0041</u>	
Filter Apparatus <u>Geo - .45 Micron</u>		Discharge Water Containerized <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Number of Bottles 11

Field Notebook \_\_\_\_\_

Sample Method Low FLOW

Discharge Water Containerized ☒ Yes ☐ No





# LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Page 1 of 1Date 04-11-05

Well Name <u>W1-19</u>	Screen Interval <u>14 - 19</u>	Station Elevation <u>GND</u> TOC <u>          </u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>Site 1 gw (semi-annual)</u>	Static Water Level (from TOC) / Time <u>4.55/1255</u> <u>4.55/1256</u> <u>4.55/1257</u>	Average Water Level (from TOC) <u>4.55</u>	
Project No. <u>1990.086E</u>	Reference Point <u>TOC</u>	PiD Readings (background) <u>0</u>	
Well Location <u>Site 1</u>	Reference Elevation <u>          </u>	PiD Reading (TOC) <u>0</u>	
Sample Date <u>04-11-05</u>	Static Elevation <u>          </u>	Notes <u>          </u>	
Sampling Personnel <u>Ogle</u>	Well Depth MEAS <u>21.35</u> RPTD <u>          </u>	Feet of Water <u>          </u>	
<u>Ramos</u>	Depth of Bottom of Tubing <u>16.5</u>		
Sample ID <u>86-S1-110</u>	Depth to Water (w/ Tubing in Well) <u>4.49</u>		
Duplicate ID <u>          </u>			

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (umhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
1302	.4	.52	7.0	337	23.9	23150	2.0	2			4.49	
1305	.4	.22	7.1	325	23.3	22854	1.5	.5			4.52	
1308	.4	.10	7.0	316	22.9	23506	1.1	.8			4.51	
1311	.4	.09	7.0	301	22.9	23026	1.4	1.0			4.51	
1314	.4	.07	7.0	204	22.8	24041	1.9	1.3			4.53	
1317	.4	.06	7.0	193	22.8	25194	1.8	1.5			4.50	
1320	.4	.05	6.9	189	22.7	25661	1.3	1.8			4.51	
1323	.4	.05	6.9	188	22.8	25878	1.3	2.1			4.53	
1326	.4	.05	6.9	186	22.8	25311	1.3	2.3			4.53	
1329	WELL STABILIZED - SAMPLING.											

### Notes:

1. Purge rate = 0.2 - 0.5 L/minute
2. Drawdown shall be <0.33 foot

## SAMPLE PARAMETERS

VOCs	SVOCs	PCBs	Pesticides	Dis. Metals	Dis. Mercury		
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## SAMPLE RATE

.1L/min	.4L/min	.4L/min	.4L/min	.4L/min	.4L/min		
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### Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks: samples effervesced in voas

## FIELD EQUIPMENT

pH Meter <u>Hydrolab</u>	Serial Number <u>#R41906</u>	Number of Bottles <u>3X40ml, 6X1L amber,</u>
Temperature Meter <u>Hydrolab</u>	Serial Number <u>#R41906</u>	<u>1X1L Poly, 1X250ml poly</u>
Turbidity Meter <u>Lamotte</u>	Serial Number <u>          </u>	
Spec. Elec. Cond. Meter <u>Hydrolab</u>	Serial Number <u>#R41906</u>	Field Notebook <u>          </u>
ORP Meter <u>Hydrolab</u>	Serial Number <u>#R41906</u>	
D.O. Meter <u>Hydrolab</u>	Serial Number <u>#R41906</u>	Sample Method <u>Low Flow</u>
Interface Probe <u>Solinst</u>	Serial Number <u>#27582</u>	
PiD/OVA <u>Mini-Rae</u>	Serial Number <u>#00320</u>	
Pump <u>Geo-Pump</u>	Serial Number <u>BA0041</u>	
Filter Apparatus <u>Geo - .45 Micron</u>		Discharge Water Containerized <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No



# LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Page 1 of 1Date 04-11-05

Well Name <u>W1-22</u>	Screen Interval <u>NA</u>	Station Elevation <u>GND</u> TOC <u>      </u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>Site 1 gw (semi-annual)</u>	Static Water Level (from TOC) / Time <u>2.40/0925</u> <u>2.40/0926</u> <u>2.40/0927</u>	Average Water Level (from TOC) <u>2.40</u>	
Project No. <u>1990.086E</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>0</u>	
Well Location <u>Site 1</u>	Reference Elevation <u>      </u>	PID Reading (TOC) <u>0</u>	
Sample Date <u>04-12-05</u>	Static Elevation <u>      </u>	Notes <u>      </u>	
Sampling Personnel <u>Ogle</u>	Well Depth MEAS <u>6.70</u> RPTD <u>      </u>	Feet of Water <u>      </u>	
<u>Ramos</u>	Depth of Bottom of Tubing <u>6</u>		
Sample ID <u>86-S1-115</u>	Depth to Water (w/ Tubing in Well) <u>2.40</u>		
Duplicate ID <u>      </u>			

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
0940	.4	.60	6.7	113	20.4	33458	5.0	.25			2.36	
0943	.4	.20	6.9	101	21.0	32128	4.3	.5			2.38	
0946	.4	.16	6.9	101	21.3	31463	2.7	.8			2.40	
0949	.4	.15	6.9	102	21.6	30401	2.2	1.0			2.39	
0952	.4	.13	7.0	104	22.0	28303	2.2	1.3			2.41	
0955	.4	.12	7.0	104	22.3	27592	2.2	1.5			2.40	
0958	.4	.11	7.0	104	22.5	27468	2.2	1.8			2.39	
1001	.4	.10	7.0	102	22.6	27441	2.3	2.1			2.41	
1004	.4	.09	7.0	101	22.6	27374	2.3	2.3			2.40	
1007	.4	.09	7.0	100	22.6	27540	2.2	2.5			2.41	
1010	WELL STABLE - SAMPLING											

### Notes:

1. Purge rate = 0.2 - 0.5 L/minute
2. Drawdown shall be <0.33 foot

## SAMPLE PARAMETERS

VOCs	SVOCs	PCBs	Pesticides	Dis. Metals	Dis. Mercury		
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## SAMPLE RATE

.1L/min	.4L/min	.4L/min	.4L/min	.4L/min	.4L/min		
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### Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks:       

## FIELD EQUIPMENT

pH Meter <u>Hydrolab</u>	Serial Number <u>#R41906</u>	Number of Bottles <u>3X40ml, 6X1L amber,</u>
Temperature Meter <u>Hydrolab</u>	Serial Number <u>#R41906</u>	<u>1X1L Poly, 1X250ml poly</u>
Turbidity Meter <u>Lamotte</u>	Serial Number <u>      </u>	
Spec. Elec. Cond. Meter <u>Hydrolab</u>	Serial Number <u>#R41906</u>	Field Notebook <u>      </u>
ORP Meter <u>Hydrolab</u>	Serial Number <u>#R41906</u>	
D.O. Meter <u>Hydrolab</u>	Serial Number <u>#R41906</u>	Sample Method <u>Low Flow</u>
Interface Probe <u>Solinst</u>	Serial Number <u>#27582</u>	
PID/OVA <u>Mini-Rae</u>	Serial Number <u>#00320</u>	
Pump <u>Geo-Pump</u>	Serial Number <u>BA0041</u>	
Filter Apparatus <u>Geo - .45 Micron</u>		Discharge Water Containerized <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Number of Bottles 11

Field Notebook \_\_\_\_\_

Sample Method LOW FLOW

Discharge Water Containerized ☒ Yes ☐ No

**OCTOBER 2005**



## Page 1 of 1

Date 10/3/05

Number of Bottles 3X40mLV  
4X1LA  
1XLP  
1X250mLV  
 Field Notebook Pg 94  
 Sample Method Low Flow  
 Discharge Water Containerized ☒ Yes ☐ No



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LOW-FLOW GROUNDWATER  
SAMPLING DATA SHEETPage 1 of 1Date 10/3/05

Well Name <u>W1-5</u>	Screen Interval <u>14.5-19.5</u>	Station Elevation <u>GND</u> TOC <u>          </u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 86-Site 1, Semi-Annual</u>	Static Water Level (from TOC) / Time <u>5.69/1504</u> <u>5.69/1504</u> <u>5.69/1505</u>		
Project No. <u>1990.086E</u>	Average Water Level (from TOC) <u>5.69</u>		
Well Location <u>Moffett-Site 1</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>Oppw</u>	
Sample Date <u>10/6/05</u>	Reference Elevation <u>          </u>	PID Reading (TOC) <u>Oppw</u>	
Sampling Personnel <u>D. HARRISON</u>	Static Elevation <u>          </u>	Notes <u>          </u>	
<u>B. Ogle</u>	Well Depth MEAS <u>21.30</u> RPTD <u>          </u>	Feet of Water <u>          </u>	
Sample ID <u>86-S1-131</u>	Depth of Bottom of Tubing <u>17</u>		
Duplicate ID <u>86-S1-132</u>	Depth to Water (w/ Tubing in Well) <u>5.68</u>		

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
1225	.4	0.51	6.5	93	23.3	59870	11.4	.1			5.69	
1228	.4	0.40	6.5	82	23.3	59563	9.6	.3			5.70	
1231	.4	0.13	6.5	67	23.3	58321	7.1	.5			5.71	
1234	.4	0.12	6.5	65	23.2	58018	4.5	.7			5.72	
1237	.4	0.11	6.5	63	23.2	57874	2.6	.9			5.73	
1240	Collect Sample											

## Notes:

- Purge rate = 0.2 - 0.5 L/minute
- Drawdown shall be <0.33 foot

## SAMPLE PARAMETERS

VOCS	SVOCS	PEST.	PCBS	D.MERC	D.METALS		

## SAMPLE RATE

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## Notes:

- Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
- Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks: Clear / slight H<sub>2</sub>S odor - VOC samples effervesced.

## FIELD EQUIPMENT

pH Meter <u>HYDROLAB</u>	Serial Number <u>#R41334</u>	Number of Bottles <u>3X40mLV</u>
Temperature Meter <u>HYDROLAB</u>	Serial Number <u>#R41334</u>	<u>4X1LA</u>
Turbidity Meter <u>HYDROLAB</u>	Serial Number <u>LaMOTTE</u>	<u>1XLP</u>
Spec. Elec. Cond. Meter <u>HYDROLAB</u>	Serial Number <u>#R41334</u>	<u>1X250mLP</u>
ORP Meter <u>HYDROLAB</u>	Serial Number <u>#R41334</u>	Field Notebook <u>Pgs. 101 + 102</u>
D.O. Meter <u>HYDROLAB</u>	Serial Number <u>#R41334</u>	Sample Method <u>Low Flow</u>
Interface Probe <u>SOLINST</u>	Serial Number <u>#25582</u>	
PID/OVA <u>MINI-RAE</u>	Serial Number <u>#00320</u>	
Pump <u>GEO-PUMP</u>	Serial Number <u>BA0041</u>	
Filter Apparatus <u>GEO-45 MICRON - D. Metals + D. Merc.</u>		Discharge Water Containerized <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No



TETRA TECH FW, INC.

LOW-FLOW GROUNDWATER  
SAMPLING DATA SHEETPage 1 of 1Date 10/3/05

Well Name <u>W1-8</u>	Screen Interval <u>13-18</u>	Station Elevation <u>GND</u> TOC	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 86-Site 1, Semi-Annual</u>	Static Water Level (from TOC) / Time <u>5.76/1507</u> <u>5.76/1508</u> <u>5.76/1509</u>	Average Water Level (from TOC) <u>5.76</u>	
Project No. <u>1990 086E</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>Oppn</u>	
Well Location <u>Moffett, Site 1</u>	Reference Elevation	PID Reading (TOC) <u>Oppn</u>	
Sample Date <u>10/6/05</u>	Static Elevation	Notes	
Sampling Personnel <u>D. HARRISON</u>	Well Depth MEAS <u>22.67</u> RPTD	Feet of Water	
<u>B. Ogle</u>	Depth of Bottom of Tubing <u>15.5</u>		
Sample ID <u>86-S1-133</u>	Depth to Water (w/ Tubing in Well) <u>5.76</u>		
Duplicate ID <u>86-S1-134</u>			

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading Location	PID/OVA Reading Value	Depth to Water <sup>2</sup> (ft)	Comments
1345	.4	0.87	6.7	63	23.5	60804	8.6	.1			5.78	
1348	.4	0.14	6.7	61	23.1	60753	8.4	.3			5.79	
1351	.4	0.12	6.7	60	23.0	60711	9.3	.5			5.81	
1354	.4	0.11	6.7	59	22.8	60648	8.9	.7			5.83	
1355	Collect	Sample									5	
1405	Collect	Field Duplicate										

## Notes:

- Purge rate = 0.2 - 0.5 L/minute
- Drawdown shall be <0.33 foot

## SAMPLE PARAMETERS

VOCs	SVOCs	PEST.	PCBS	D.MERC	D.METALS		
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## SAMPLE RATE

.1	.4	.4	.4	.4	.4		
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## Notes:

- Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
- Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks: Green / H<sub>2</sub>S odor

## FIELD EQUIPMENT

pH Meter <u>HYDROLAB</u>	Serial Number <u>#R41334</u>	Number of Bottles <u>6X40mLV</u>
Temperature Meter <u>HYDROLAB</u>	Serial Number <u>#R41334</u>	<u>8X1LA</u>
Turbidity Meter <u>HYDROLAB</u>	Serial Number <u>LaMOTTE</u>	<u>2XLP</u>
Spec. Elec. Cond. Meter <u>HYDROLAB</u>	Serial Number <u>#R41334</u>	<u>2X250mLP</u>
ORP Meter <u>HYDROLAB</u>	Serial Number <u>#R41334</u>	Field Notebook <u>Pgs. 102 + 103</u>
D.O. Meter <u>HYDROLAB</u>	Serial Number <u>#R41334</u>	Sample Method <u>Low Flow</u>
Interface Probe <u>SOLINST</u>	Serial Number <u>#25582</u>	
PID/OVA <u>MINI-RAE</u>	Serial Number <u>#00320</u>	
Pump <u>GEO-PUMP</u>	Serial Number <u>BA0041</u>	
Filter Apparatus <u>GEO-45 MICRON - D. Metals + D. Merc</u>		Discharge Water Containerized <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No



TETRA TECH FW, INC.

LOW-FLOW GROUNDWATER  
SAMPLING DATA SHEETPage 1 of 1Date 10/3/05Well Name W1-12RProject CTO 86-Site 1, Semi-AnnualProject No. 1990.086EWell Location Moffett- Site 1Sample Date 10/6/05Sampling Personnel D. HARRISONB. OgleSample ID 86-S1-129Duplicate ID N/AScreen Interval 15-25Station Elevation GND TOC           Static Water Level (from TOC) / Time 3.04/1442 3.04/1443 3.04/1444Average Water Level (from TOC) 3.04Reference Point TOCReference Elevation           Static Elevation           Well Depth MEAS 26.64 RPTD           Depth of Bottom of Tubing 20Depth to Water (w/ Tubing in Well) 3.04Immiscible Phases Present ☐ Yes ☒ NoPID Readings (background) OpenPID Reading (TOC) OpenNotes           Feet of Water           

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
1025	.4	0.55	6.6	160	19.8	68703	31.8	.1			3.05	
1029	.4	0.38	6.6	160	19.8	68760	30.2	.3			3.06	
1031	.4	0.20	6.6	161	19.8	68671	25.4	.5			3.06	
1034	.4	0.15	6.5	163	19.9	68685	22.7	.7			3.06	
1037	.4	0.14	6.5	163	19.9	68687	21.8	.9			3.06	
1040	.4	0.13	6.5	164	19.9	68690	21.2	1.1			3.06	
1041	Collect Sample											

## Notes:

1. Purge rate = 0.2 - 0.5 L/minute

2. Drawdown shall be &lt;0.33 foot

## SAMPLE PARAMETERS

VOCs	SVOCs	PEST.	PCBS	D.MERC	D.METALS		
------	-------	-------	------	--------	----------	--	--

## SAMPLE RATE

.1	.4	.4	.4				
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## Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute

2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks: Turbid / Strong H<sub>2</sub>S odor

## FIELD EQUIPMENT

pH Meter HYDROLABTemperature Meter HYDROLABTurbidity Meter HYDROLABSpec. Elec. Cond. Meter HYDROLABORP Meter HYDROLABD.O. Meter HYDROLABInterface Probe SOLINSTPID/OVA MINI-RAEPump GEO-PUMPFilter Apparatus GEO-45 MICRON - D. Metals + D. Merc.Serial Number #R41334Serial Number #R41334Serial Number LaMOTTESerial Number #R41334Serial Number #R41334Serial Number #R41334Serial Number #25582Serial Number #00320Serial Number BA0041Number of Bottles 3X40mL V4X1LA1XLP1X250mLPField Notebook Pg 100Sample Method Low FlowDischarge Water Containerized ☒ Yes ☐ No





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Date 10/3/05

Number of Bottles 9X40mL  
12X1LA  
3XLP  
3X250mLP  
 Field Notebook Pg 99  
 Sample Method Low Flow  
 Discharge Water Containerized ☒ Yes ☐ No



TETRA TECH FW, INC.

LOW-FLOW GROUNDWATER  
SAMPLING DATA SHEETPage 1 of 1Date 10/3/05

Well Name <u>W1-15</u>	Screen Interval <u>4.4-14.4</u>	Station Elevation <u>GND</u> TOC <u>          </u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 86-Site 1, Semi-Annual</u>	Static Water Level (from TOC) / Time <u>5.90/1403</u> <u>5.90/1404</u> <u>5.90/1405</u>		
Project No. <u>1990.086E</u>	Average Water Level (from TOC) <u>5.90</u>		
Well Location <u>Moffett-Site 1</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>0ppm</u>	
Sample Date <u>10/4/05</u>	Reference Elevation <u>          </u>	PID Reading (TOC) <u>0ppm</u>	
Sampling Personnel <u>D. HARRISON</u>	Static Elevation <u>          </u>	Notes <u>          </u>	
<u>B. Ogle</u>	Well Depth MEAS <u>17.46</u> RPTD <u>          </u>	Feet of Water <u>          </u>	
Sample ID <u>86-S1-125</u>	Depth of Bottom of Tubing <u>9.4</u>		
Duplicate ID <u>N/A</u>	Depth to Water (w/ Tubing in Well) <u>5.90</u>		

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
1535	.4	0.46	6.5	-19	21.8	54440	22.8	.2			5.93	
1538	.4	0.40	6.6	-21	21.7	56739	13.7	.4			5.95	
1541	.4	0.29	6.6	-30	21.5	63278	9.0	.6			5.96	
1544	.4	0.27	6.7	-31	21.4	64536	7.2	.8			5.97	
1547	.4	0.26	6.7	-32	21.2	64824	6.4	1.0			5.98	
1550	Collect Sample											

Notes:

1. Purge rate = 0.2 - 0.5 L/minute

2. Drawdown shall be &lt;0.33 foot

## SAMPLE PARAMETERS

VOCS	SVOCs	PEST.	PCBS	D.MERC	D.METALS		
0.14/m	.4	.4	.4	.4	.4		

Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute

2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks: Clear/odorless - VOC samples collected

## FIELD EQUIPMENT

pH Meter <u>HYDROLAB</u>	Serial Number <u>#R41334</u>	Number of Bottles <u>3X40mL</u>
Temperature Meter <u>HYDROLAB</u>	Serial Number <u>#R41334</u>	<u>4X1LA</u>
Turbidity Meter <u>HYDROLAB</u>	Serial Number <u>LaMOTTE</u>	<u>1XLP</u>
Spec. Elec. Cond. Meter <u>HYDROLAB</u>	Serial Number <u>#R41334</u>	<u>1X250mLP</u>
ORP Meter <u>HYDROLAB</u>	Serial Number <u>#R41334</u>	Field Notebook <u>Pgs. 96 + 97</u>
D.O. Meter <u>HYDROLAB</u>	Serial Number <u>#R41334</u>	Sample Method <u>Low Flow</u>
Interface Probe <u>SOLINST</u>	Serial Number <u>#25582</u>	
PID/OVA <u>MINI-RAE</u>	Serial Number <u>#00320</u>	
Pump <u>GEO-PUMP</u>	Serial Number <u>BA0041</u>	
Filter Apparatus <u>GEO-45 MICRON - D. Metals + D. Merc.</u>		Discharge Water Containerized <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No



TETRA TECH FW, INC.

LOW-FLOW GROUNDWATER  
SAMPLING DATA SHEETPage 1 of 1Date 10/3/05

Well Name <u>W1-16</u>	Screen Interval <u>5.4-15.4</u>	Station Elevation <u>GND</u> TOC <u>          </u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 86-Site 1, Semi-Annual</u>	Static Water Level (from TOC) / Time <u>7.01/1517</u> <u>7.01/1518</u> <u>7.01/1518</u>		
Project No. <u>1990.086E</u>	Average Water Level (from TOC) <u>7.01</u>		
Well Location <u>Moffett- Site 1</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>Oppm</u>	
Sample Date <u>10/6/05</u>	Reference Elevation <u>          </u>	PID Reading (TOC) <u>Oppm</u>	
Sampling Personnel <u>D. HARRISON</u>	Static Elevation <u>          </u>	Notes <u>          </u>	
<u>B. Ogle</u>	Well Depth MEAS <u>18.24</u> RPTD <u>          </u>	Feet of Water <u>          </u>	
Sample ID <u>86-S1-136</u>	Depth of Bottom of Tubing <u>10.4</u>		
Duplicate ID <u>N/A</u>	Depth to Water (w/ Tubing in Well) <u>7.01</u>		

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
1545	.4	0.58	6.6	34	22.3	63084	28	.2			7.03	
1548	.4	0.24	6.6	24	22.0	63446	22.6	.4			7.04	
1551	.4	0.13	6.5	20	22.6	64327	16	.6			7.05	
1554	.4	0.12	6.6	18	22.3	64517	14.5	.8			7.07	
1557	.4	0.11	6.5	17	21.0	64722	14.1	1.0			7.09	
1600	Collect Sample											

## Notes:

- Purge rate = 0.2 - 0.5 L/minute
- Drawdown shall be <0.33 foot

## SAMPLE PARAMETERS

VOCS	SVOCS	PEST.	PCBS	D.MERC	D.METALS		
Sample Rate	.4	.4	.4	.4	.4		

## Notes:

- Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
- Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks: Turbid / Slight H<sub>2</sub>S odor - VOC samples effervesced

## FIELD EQUIPMENT

pH Meter <u>HYDROLAB</u>	Serial Number <u>#R41334</u>	Number of Bottles <u>3X40mLV</u>
Temperature Meter <u>HYDROLAB</u>	Serial Number <u>#R41334</u>	<u>4X1LA</u>
Turbidity Meter <u>HYDROLAB</u>	Serial Number <u>LaMOTTE</u>	<u>1XLP</u>
Spec. Elec. Cond. Meter <u>HYDROLAB</u>	Serial Number <u>#R41334</u>	<u>1X250mLP</u>
ORP Meter <u>HYDROLAB</u>	Serial Number <u>#R41334</u>	Field Notebook <u>Pg 104</u>
D.O. Meter <u>HYDROLAB</u>	Serial Number <u>#R41334</u>	Sample Method <u>Low Flow</u>
Interface Probe <u>SOLINST</u>	Serial Number <u>#25582</u>	
PID/OVA <u>MINI-RAE</u>	Serial Number <u>#00320</u>	
Pump <u>GEO-PUMP</u>	Serial Number <u>BA0041</u>	
Filter Apparatus <u>GEO-45 MICRON D. Metals + D. Merc.</u>		Discharge Water Containerized <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No



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Discharge Water Containerized ☒ Yes ☐ No



TETRA TECH FW, INC.

LOW-FLOW GROUNDWATER  
SAMPLING DATA SHEETPage 1 of 1Date 10/3/05

Well Name <u>W1-22</u>	Screen Interval <u>N/A</u>	Station Elevation <u>GND</u> TOC	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 86-Site 1, Semi-Annual</u>	Static Water Level (from TOC) / Time <u>3.69/1448</u> <u>3.69/1449</u> <u>3.69/1450</u>	Average Water Level (from TOC) <u>3.69</u>	
Project No. <u>1990.086E</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>Oppm</u>	
Well Location <u>Moffett-Site 1</u>	Reference Elevation	PID Reading (TOC) <u>Oppm</u>	
Sample Date <u>10/6/05</u>	Static Elevation	Notes	
Sampling Personnel <u>D. HARRISON</u>	Well Depth MEAS <u>6.75</u> RPTD	Feet of Water	
<u>B. Ogle</u>	Depth of Bottom of Tubing		
Sample ID <u>86-S1-130</u>	Depth to Water (w/ Tubing in Well) <u>3.69</u>		
Duplicate ID <u>N/A</u>			

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	EH/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
1120	.4	0.34	6.3	61	23.9	46217	320	.2			3.72	
1123	.4	0.38	6.3	55	23.8	45727	176	.4			3.72	
1126	.4	0.27	6.5	48	23.6	45831	118	.6			3.73	
1129	.4	0.21	6.3	45	23.5	45264	83	.8			3.73	
1132	.4	0.16	6.3	40	23.4	44827	45	1.0			3.74	
1135	.4	0.13	6.3	38	23.4	44014	18	1.2			3.74	
1138	.4	0.12	6.3	37	23.4	43862	16	1.4			3.75	
1140	.4	0.10	6.3	37	23.4	43570	15	1.6			3.75	
1145	Collect	Sample										

## Notes:

1. Purge rate = 0.2 - 0.5 L/minute
2. Drawdown shall be <0.33 foot

## SAMPLE PARAMETERS

VOCs	SVOCs	PEST.	PCBS	D.MERC	D.METALS		

## SAMPLE RATE

--	--	--	--	--	--	--	--

## Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks: Turbid / Slight H<sub>2</sub>S odor

## FIELD EQUIPMENT

pH Meter <u>HYDROLAB</u>	Serial Number <u>#R41334</u>	Number of Bottles <u>3X40mLV</u>
Temperature Meter <u>HYDROLAB</u>	Serial Number <u>#R41334</u>	<u>4X1LA</u>
Turbidity Meter <u>HYDROLAB</u>	Serial Number <u>LaMOTTE</u>	<u>1XLP</u>
Spec. Elec. Cond. Meter <u>HYDROLAB</u>	Serial Number <u>#R41334</u>	<u>1X250mLP</u>
ORP Meter <u>HYDROLAB</u>	Serial Number <u>#R41334</u>	Field Notebook <u>Pgs 100 + 101</u>
D.O. Meter <u>HYDROLAB</u>	Serial Number <u>#R41334</u>	Sample Method <u>Low Flow</u>
Interface Probe <u>SOLINST</u>	Serial Number <u>#25582</u>	
PID/OVA <u>MINI-RAE</u>	Serial Number <u>#00320</u>	
Pump <u>GEO-PUMP</u>	Serial Number <u>BA0041</u>	
Filter Apparatus <u>GEO-45 MICRON - D. Metals + D. Merc</u>		Discharge Water Containerized <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Well Name <u>W1-23</u>	Screen Interval <u>n/a</u>	
Project <u>CTO 86-Site 1, Semi-Annual</u>	Station Elevation <u>GND</u> TOC <u>          </u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project No. <u>1990.086E</u>	Static Water Level (from TOC) / Time <u>5.64/1438</u> <u>5.64/1439</u> <u>5.64/1440</u>	
Well Location <u>Moffett - Site 1</u>	Average Water Level (from TOC) <u>5.64</u>	
Sample Date <u>          </u>	Reference Point <u>TOC</u>	PID Readings (background) <u>Oppm</u>
Sampling Personnel <u>D. HARRISON</u>	Reference Elevation <u>          </u>	PID Reading (TOC) <u>Oppm</u>
<u>B. Ogle</u>	Static Elevation <u>          </u>	Notes <u>          </u>
	Well Depth MEAS <u>3.94</u> RPTD <u>6.0</u>	Feet of Water <u>          </u>
Sample ID <u>86-S1-127</u>	Depth of Bottom of Tubing <u>N 5.85</u>	
Duplicate ID <u>N/A</u>	Depth to Water (w/ Tubing in Well) <u>5.64</u>	

## PURGING

[illegible]

**Notes:**

1. Purge rate = 0.2 - 0.5 U/minute
2. Drawdown shall be  $\leq 0.33$  foot

### SAMPLE PARAMETERS

SAMPLE PARAMETERS							
VOCS	SVOCS	PEST.	PCBS	D.MERC	D.METALS		
SAMPLE RATE							
—	—	—	—	—	—		

**Notes:**

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: Good

Remarks: Turbid / Strong No Scale

## FIELD EQUIPMENT

pH Meter HYDROLAB  
 Temperature Meter HYDROLAB  
 Turbidity Meter HYDROLAB  
 Spec. Elec. Cond. Meter HYDROLAB  
 ORP Meter HYDROLAB  
 D.O. Meter HYDROLAB  
 Interface Probe SOLINST  
 PID/OVA MINI-RAE  
 Pump GEO-PUMP  
 Filter Apparatus GEO-45 MICRON

Serial Number	#R41334
Serial Number	#R41334
Serial Number	LaMOTTE
Serial Number	#R41334
Serial Number	#R41334
Serial Number	#R41334
Serial Number	#25582
Serial Number	#00320
Serial Number	BA0041

Number of Bottles 3X40mLV  
4X1LA  
1XLP  
1X250mLP

Field Notebook Ag-99

Sample Method Low Flow

Discharge Water Containerized ☒ Yes ☐ No



TETRA TECH FW, INC.

LOW-FLOW GROUNDWATER  
SAMPLING DATA SHEETPage 1 of 1Date 10/3/05

Well Name <u>W1-24</u>	Screen Interval <u>6-16</u>	Station Elevation <u>GND</u> TOC	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 86-Site 1, Semi-Annual</u>	Static Water Level (from TOC) / Time <u>7.34/1513</u> <u>7.34/1513</u> <u>7.34/1514</u>	Average Water Level (from TOC) <u>7.34</u>	
Project No. <u>1990.086E</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>Appu</u>	
Well Location <u>Moffett-Site 1</u>	Reference Elevation	PID Reading (TOC) <u>Appu</u>	
Sample Date <u>10/6/05</u>	Static Elevation	Notes	
Sampling Personnel <u>D. HARRISON</u>	Well Depth MEAS <u>20.25</u> RPTD	Feet of Water	
<u>B. Ogle</u>	Depth of Bottom of Tubing <u>11</u>		
Sample ID <u>86-S1-135</u>	Depth to Water (w/ Tubing in Well) <u>7.34</u>		
Duplicate ID <u>N/A</u>			

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading Location	Value	Depth to Water <sup>2</sup> (ft)	Comments
1500	.4	0.94	6.6	30	21.8	59541	12	.2			7.36	
1503	.4	0.23	6.6	10	21.4	59674	9.7	.4			7.37	
1506	.4	0.21	6.5	9	20.7	59945	8.2	.6			7.39	
1509	.4	0.20	6.5	8	20.5	60221	6.3	.8			7.40	
1510	Collect Sample											

Notes:

1. Purge rate = 0.2 - 0.5 L/minute

2. Drawdown shall be &lt;0.33 foot

## SAMPLE PARAMETERS

VOCs	SVOCS	PEST.	PCBS	D.MERC	D.METALS		
------	-------	-------	------	--------	----------	--	--

## SAMPLE RATE

.4	.4	.4	.4	.4	.4		
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Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute

2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks: Clear / slight H<sub>2</sub>S odor - VOC samples effervesced.

## FIELD EQUIPMENT

pH Meter <u>HYDROLAB</u>	Serial Number <u>#R41334</u>	Number of Bottles <u>3X40mLV</u>
Temperature Meter <u>HYDROLAB</u>	Serial Number <u>#R41334</u>	<u>4X1LA</u>
Turbidity Meter <u>HYDROLAB</u>	Serial Number <u>LaMOTTE</u>	<u>1XLP</u>
Spec. Elec. Cond. Meter <u>HYDROLAB</u>	Serial Number <u>#R41334</u>	<u>1X250mLP</u>
ORP Meter <u>HYDROLAB</u>	Serial Number <u>#R41334</u>	Field Notebook <u>Pgs 103 + 104</u>
D.O. Meter <u>HYDROLAB</u>	Serial Number <u>#R41334</u>	Sample Method <u>Low Flow</u>
Interface Probe <u>SOLINST</u>	Serial Number <u>#25582</u>	
PID/OVA <u>MINI-RAE</u>	Serial Number <u>#00320</u>	
Pump <u>GEO-PUMP</u>	Serial Number <u>BA0041</u>	
Filter Apparatus <u>GEO-45 MICRON - D. Metals + D. Merc.</u>		Discharge Water Containerized <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

## **SUPPLEMENTAL SAMPLING DATA**



**JANUARY 2005**



TETRA TECH INC.

# LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Page 1 of 1Date January 31, 2005

Well Name <u>W1-1R</u>	Screen Interval <u>14.3 - 24.3</u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 86 Site 1 R7/05</u>	Station Elevation <u>GND</u> TOC <u>      </u>	
Project No. <u>1990 . 086E</u>	Static Water Level (from TOC) / Time <u>7.75/1201</u> <u>7.79/1202</u> <u>7.75/1203</u>	
Well Location <u>Site 1</u>	Average Water Level (from TOC) <u>7.77</u>	
Sample Date <u>January 31, 2005</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>0</u>
Sampling Personnel <u>Ogle</u>	Reference Elevation <u>      </u>	PID Reading (TOC) <u>0</u>
<u>Ramos</u>	Static Elevation <u>      </u>	Notes <u>      </u>
	Well Depth MEAS <u>27.45</u> RPTD <u>      </u>	Feet of Water <u>      </u>
Sample ID <u>86-S1-084</u>	Depth of Bottom of Tubing <u>19.3</u>	
Duplicate ID <u>NA</u>	Depth to Water (w/ Tubing in well) <u>19.3</u>	

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
1455	0.4	0.21	6.6	236	22.6	66500	1.2	0.25				
1458	0.4	0.11	6.6	218	22.3	67305	1.4	0.5				
1501	0.4	0.11	6.6	222	21.7	67109	1	0.75				
1504	0.4	0.11	6.6	226	21.4	66940	0.98	1				
1507	0.4	0.1	6.6	234	21.1	66372	0.97	1.3				
1510	0.4	0.09	6.6	240	20.8	66130	0.95	1.5				
1513	0.4	0.09	6.6	242	20.8	66136	0.95	1.8				
1516	0.4	0.09	6.6	243	20.7	66160	0.9	2				
1519	0.4	0.09	6.6	242	20.6	66181	0.9	2.25				
1522	0.4	0.09	6.6	242	20.6	66180	0.88	2.6				
1525	Well stabilized - began sampling											

Notes:

1. Purge rate = 0.2 - 0.5 L/minute

2. Drawdown shall be &lt;0.33 foot

## SAMPLE PARAMETERS

2 X SVOCs	1 X Dis. Met.											
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## SAMPLE RATE

0.4	0.4											
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Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute

2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks: Still need to paint

## FIELD EQUIPMENT

pH Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	Number of Bottles <u>2 X 1LA</u>
Temperature Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	<u>1 X 250ml poly</u>
Turbidity Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	
Spec. Elec. Cond. Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	Field Notebook <u>6.5"</u>
ORP Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	
D.O. Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	Sample Method <u>Low Flow</u>
Interface Probe <u>Solinst</u>	Serial Number <u>25582</u>	
PID/OVA <u>Mini-Rae</u>	Serial Number <u>00320</u>	
Pump <u>Geo-Pump</u>	Serial Number <u>BA0041</u>	
Filter Apparatus <u>NA</u>		Discharge Water Containerized <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No



TETRA TECH P.W. INC.

# LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Page 1 of 1Date January 31, 2005

Well Name <u>W1-5</u>	Screen Interval <u>14.5 - 19.5</u>	Station Elevation <u>GND</u> TOC <u>      </u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 86 Site 1 R7/05</u>	Static Water Level (from TOC) / Time <u>5.32/1242</u> <u>5.32/1242</u> <u>5.32/1242</u>		
Project No. <u>1990.086E</u>	Average Water Level (from TOC) <u>5.32</u>		
Well Location <u>Site 1</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>0</u>	
Sample Date <u>February 2, 2005</u>	Reference Elevation <u>      </u>	PID Reading (TOC) <u>0</u>	
Sampling Personnel <u>Ogle</u>	Static Elevation <u>      </u>	Notes <u>      </u>	
<u>Ramos</u>	Well Depth MEAS <u>19.30</u> RPTD <u>      </u>	Feet of Water <u>      </u>	
Sample ID <u>86-S1-092</u>	Depth of Bottom of Tubing <u>17</u>		
Duplicate ID <u>NA</u>	Depth to Water (w/ Tubing in well) <u>5.3</u>		

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
1345	0.4	0.54	7	294	20.63	56250	1.3	0.25				
1348	0.4	0.14	7	293	20.04	57034	0.9	0.5				
1351	0.4	0.09	7	291	19.94	57043	0.8	0.75				
1354	0.4	0.08	7	282	19.51	57940	0.6	1				
1357	0.4	0.07	7	258	19.85	57716	0.2	1.3				
1400	0.4	0.06	7	266	19.98	57700	0.2	1.6				
1403	0.4	0.05	7	261	19.89	57688	0.2	1.8				
1406	0.4	0.06	7	263	19.93	57739	0.2	2				
1415 start												

Notes:

1. Purge rate = 0.2 - 0.5 L/minute

2. Drawdown shall be &lt;0.33 foot

## SAMPLE PARAMETERS

2 X SVOCs	1 X Dis. Mer.											
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## SAMPLE RATE

0.4	0.4											
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Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute

2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks:       

## FIELD EQUIPMENT

pH Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	Number of Bottles <u>2 X 1L</u>
Temperature Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	<u>1 X 250ml poly</u>
Turbidity Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	
Spec. Elec. Cond. Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	Field Notebook <u>70</u>
ORP Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	
D.O. Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	Sample Method <u>Low Flow</u>
Interface Probe <u>Solinst</u>	Serial Number <u>25582</u>	
PID/OVA <u>Mini-Rae</u>	Serial Number <u>00320</u>	
Pump <u>Geo-Pump</u>	Serial Number <u>BA0041</u>	
Filter Apparatus <u>NA</u>		Discharge Water Containerized <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No



TETRA TECH INC.

# LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Page 1 of 1Date January 31, 2005

Well Name <u>W1-8</u>	Screen Interval <u>13 - 18</u>	Station Elevation <u>GND</u> TOC <u>          </u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 86 Site 1 R7/05</u>	Static Water Level (from TOC) / Time <u>5.35/1244</u> <u>5.34/1245</u> <u>5.35/1246</u>	Average Water Level (from TOC) <u>5.35</u>	
Project No. <u>1990 . 086E</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>0</u>	
Well Location <u>Site 1</u>	Reference Elevation <u>          </u>	PID Reading (TOC) <u>0</u>	
Sample Date <u>February 2, 2005</u>	Static Elevation <u>          </u>	Notes <u>          </u>	
Sampling Personnel <u>Ogle</u>	Well Depth MEAS <u>22.68</u> RPTD <u>          </u>	Feet of Water <u>          </u>	
<u>Ramos</u>	Depth of Bottom of Tubing <u>15.5</u>		
Sample ID <u>86-S1-093</u>	Depth to Water (w/ Tubing in well) <u>5.35</u>		
Duplicate ID <u>NA</u>			

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	EH/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
1425	0.4	0.23	7.4	295	23.32	39612	1.4	0.25				
1428	0.4	0.15	7.4	293	23.67	39304	1.4	0.5				
1431	0.4	0.1	7.4	291	23.94	38481	1.4	0.75				
1434	0.4	0.09	7.4	288	24.05	36986	1.3	1				
1437	0.4	0.08	7.4	278	23.59	36691	1.3	1.3				
1440	0.4	0.08	7.4	281	23.66	36559	1.3	1.6				
1443	0.4	0.09	7.3	278	23.59	36534	1.3	1.8				
1446	0.4	0.08	7.3	277	23.58	36500	1.2	2				
1449	0.4	0.09	7.3	280	23.59	36498	1.2	2.25				
1452	0.4	0.09	7.3	279	23.6	36491	1.2	2.5				
1500 stop												

Notes:

1. Purge rate = 0.2 - 0.5 L/minute

2. Drawdown shall be &lt;0.33 foot

## SAMPLE PARAMETERS

2 X SVOCs	1 X Dis. Mer.											
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## SAMPLE RATE

0.4	0.4											
-----	-----	--	--	--	--	--	--	--	--	--	--	--

Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute

2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks:           

## FIELD EQUIPMENT

pH Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	Number of Bottles <u>2 X 1LA</u>
Temperature Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	<u>1 X 250ml poly</u>
Turbidity Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	
Spec. Elec. Cond. Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	Field Notebook <u>70</u>
ORP Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	
D.O. Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	Sample Method <u>Low Flow</u>
Interface Probe <u>Solinst</u>	Serial Number <u>25582</u>	
PID/OVA <u>Mini-Rae</u>	Serial Number <u>00320</u>	
Pump <u>Geo-Pump</u>	Serial Number <u>BA0041</u>	
Filter Apparatus <u>NA</u>		Discharge Water Containerized <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Well Name	W1-12R	Screen Interval	15 - 25	Immiscible Phases Present	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project	CTO 86 Site 1 R7/05	Station Elevation	GND TOC		
Project No.	1990 . 066E	Static Water Level (from TOC) / Time	2.56/1233 2.58/1234 2.58/1235		
Well Location	Site 1	Average Water Level (from TOC)	2.58		
Sample Date	February 1, 2005	Reference Point	TOC	PID Readings (background)	0
Sampling Personnel	Ogle	Reference Elevation		PID Reading (TOC)	0
	Ramos	Static Elevation		Notes	
		Well Depth MEAS	25.69 RPTD	Feet of Water	
Sample ID	86-S1-089	Depth of Bottom of Tubing	20		
Duplicate ID	86-S1-090	Depth to Water (w/ Tubing in well)	2.58		

## PURGING

[illegible]

**Notes:**

1. Purge rate = 0.2 - 0.5 L/minute
2. Drawdown shall be  $\leq 0.33$  foot.

### SAMPLE PARAMETERS

4X SVOCs	2 X Dis. Mer.						
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**SAMPLE RATE**

04	04						
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### Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: Good

Remarks: \_\_\_\_\_

## FIELD EQUIPMENT

pH Meter \_\_\_\_\_ Hydrolab  
 Temperature Meter \_\_\_\_\_ Hydrolab  
 Turbidity Meter \_\_\_\_\_ Hydrolab  
 Spec. Elec. Cond. Meter \_\_\_\_\_ Hydrolab  
 ORP Meter \_\_\_\_\_ Hydrolab  
 D.O. Meter \_\_\_\_\_ Hydrolab  
 Interface Probe \_\_\_\_\_ Solinst  
 PID/OVA \_\_\_\_\_ Mini-Rae  
 Pump \_\_\_\_\_ Geo-Pump  
 Filter Apparatus \_\_\_\_\_ NA

Serial Number	3656
Serial Number	3656
Serial Number	3656
Serial Number	3656
Serial Number	3656
Serial Number	3656
Serial Number	25582
Serial Number	00320
Serial Number	BA0041

Number of Bottles 4 X 1LA  
2 X 250ml poly  
 Field Notebook 68  
 Sample Method Low Flow  
 Discharge Water Containerized ☒ Yes ☐ No



TETRA TECH PAVING, INC.

# LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Page 1 of 1Date January 31, 2005

Well Name <u>W1-14</u>	Screen Interval <u>4.1 - 14.1</u>	Station Elevation <u>GND</u> TOC <u>      </u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 86 Site 1 R7/05</u>	Static Water Level (from TOC) / Time <u>5.21/1219</u> <u>5.22/1220</u> <u>5.20/1221</u>		
Project No. <u>1990.086E</u>	Average Water Level (from TOC) <u>5.21</u>		
Well Location <u>Site 1</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>0</u>	
Sample Date <u>February 1, 2005</u>	Reference Elevation <u>      </u>	PID Reading (TOC) <u>0</u>	
Sampling Personnel <u>Ogle</u>	Static Elevation <u>      </u>	Notes <u>      </u>	
<u>Ramos</u>	Well Depth MEAS <u>17.40</u> RPTD <u>      </u>	Feet of Water <u>      </u>	
Sample ID <u>86-S1-088</u>	Depth of Bottom of Tubing <u>9.1</u>		
Duplicate ID <u>NA</u>	Depth to Water (w/ Tubing in well) <u>5.21</u>		

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
1325	0.4	0.22	6.9	161	23.3	54472	32	0.25				
1328	0.4	0.12	7	158	22.9	54757	18	0.5				
1331	0.4	0.11	7	152	22.7	55058	15	0.75				
1334	0.4	0.07	7	148	33.7	55170	13	1				
1337	0.4	0.07	7	146	22.6	55220	12	1.3				
1340	0.4	0.06	7	122	22.6	55289	13	1.6				
1343	0.4	0.07	7	85	22.8	57362	10	1.8				
1346	0.4	0.07	7	88	22.6	55111	7	2				
1349	0.4	0.07	7	85	22.6	55090	4.5	2.25				
1352	0.4	0.07	7	84	22.6	55118	4	2.5				
1400 stop												

Notes:

1. Purge rate = 0.2 - 0.5 L/minute

2. Drawdown shall be &lt;0.33 foot

## SAMPLE PARAMETERS

3 X SVOCs	1 X Dis. Mer.											
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## SAMPLE RATE

0.4	0.4											
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Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute

2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks:       

## FIELD EQUIPMENT

pH Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	Number of Bottles <u>3 X 11A</u>
Temperature Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	<u>1 X 250ml poly</u>
Turbidity Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	Field Notebook <u>67</u>
Spec. Elec. Cond. Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	
ORP Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	Sample Method <u>Low Flow</u>
D.O. Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	
Interface Probe <u>Solinst</u>	Serial Number <u>25582</u>	
PID/OVA <u>Mini-Rae</u>	Serial Number <u>00320</u>	
Pump <u>Geo-Pump</u>	Serial Number <u>BA0041</u>	
Filter Apparatus <u>NA</u>		Discharge Water Containerized <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No



TETRA TECH P.A. INC.

# LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Page 1 of 1Date January 31, 2005

Well Name <u>W1-15</u>	Screen Interval <u>4.4 - 14.4</u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 86 Site 1 R7/05</u>	Station Elevation <u>GND</u> TOC <u>      </u>	
Project No. <u>1990 . 086E</u>	Static Water Level (from TOC) / Time <u>5.43/1207</u> <u>5.43/1208</u> <u>5.42/1209</u>	
Well Location <u>Site 1</u>	Average Water Level (from TOC) <u>5.43</u>	
Sample Date <u>February 1, 2005</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>0</u>
Sampling Personnel <u>Ogle</u>	Reference Elevation <u>      </u>	PID Reading (TOC) <u>0</u>
<u>Ramos</u>	Static Elevation <u>      </u>	Notes <u>      </u>
	Well Depth MEAS <u>17.76</u> RPTD <u>      </u>	Feet of Water <u>      </u>
Sample ID <u>86-S1-085</u>	Depth of Bottom of Tubing <u>9.4</u>	
Duplicate ID <u>NA</u>	Depth to Water (w/ Tubing in well) <u>5.4</u>	

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
754	0.4	0.47	6.8	206	12.7	54859	20	0.25				
757	0.4	0.2	6.8	159	13.3	55033	19	0.5				
800	0.4	0.13	6.8	67	14.9	55062	4.9	0.75				
803	0.4	0.11	6.8	60	15.3	54986	3.3	1				
806	0.4	0.09	6.7	49	16.7	56833	3	1.3				
809	0.4	0.09	6.7	44	16.9	50850	3	1.5				
812	0.4	0.08	6.7	48	17	50623	1.8	1.8				
815	0.4	0.08	6.7	44	17	50613	1.8	2				
818	0.4	0.08	6.7	44	17.1	50589	1.7	2.25				
821	Well stabilized - began sampling											

Notes:

1. Purge rate = 0.2 - 0.5 L/minute

2. Drawdown shall be &lt;0.33 foot

## SAMPLE PARAMETERS

6 X SVOCs	3 X Dis. Mer.											
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## SAMPLE RATE

0.4	0.4											
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Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute

2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks:       

## FIELD EQUIPMENT

pH Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	Number of Bottles <u>6 X 1LA</u>
Temperature Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	<u>3 X 250ml poly</u>
Turbidity Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	
Spec. Elec. Cond. Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	Field Notebook <u>66</u>
ORP Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	
D.O. Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	Sample Method <u>Low Flow</u>
Interface Probe <u>Solinst</u>	Serial Number <u>25582</u>	
PID/OVA <u>Mini-Rae</u>	Serial Number <u>00320</u>	
Pump <u>Geo-Pump</u>	Serial Number <u>BA0041</u>	
Filter Apparatus <u>NA</u>		Discharge Water Containerized <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No



TETRA TECH INC.

# LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Page 1 of 1Date January 31, 2005

Well Name <u>W1-16</u>	Screen Interval <u>5.4-15.4</u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 86 Site 1 R7/05</u>	Station Elevation <u>GND</u> TOC <u></u>	
Project No. <u>1990 - 086E</u>	Static Water Level (from TOC) / Time <u>7.60/1255</u> <u>7.50/1256</u> <u>7.39/1257</u>	
Well Location <u>Site 1</u>	Average Water Level (from TOC) <u>7.50</u>	
Sample Date <u>February 2, 2005</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>0</u>
Sampling Personnel <u>Ogle</u>	Reference Elevation <u></u>	PID Reading (TOC) <u>0</u>
<u>Ramos</u>	Static Elevation <u></u>	Notes <u></u>
	Well Depth MEAS <u>18.22</u> RPTD <u></u>	Feet of Water <u></u>
Sample ID <u>86-S1-095</u>	Depth of Bottom of Tubing <u>10.4</u>	
Duplicate ID <u>NA</u>	Depth to Water (w/ Tubing in well) <u>7.50</u>	

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
1600	0.4	0.42	6.8	106	24.65	61461	1.2	0.25				
1603	0.4	0.17	6.8	96	24.32	62006	0.3	0.5				
1606	0.4	0.13	6.8	85	24.09	62069	0.2	0.75				
1609	0.4	0.1	6.8	77	23.91	62121	0.1	1				
1612	0.4	0.07	6.8	67	23.56	62241	0.4	1.3				
1615	0.4	0.06	6.8	70	23.55	62155	0.4	1.6				
1618	0.4	0.04	6.8	67	23.48	62190	0.4	1.8				
1621	0.4	0.05	6.8	66	23.46	62154	0.3	2				
1630 star												

Notes:

1. Purge rate = 0.2 - 0.5 L/minute

2. Drawdown shall be &lt;0.33 foot

## SAMPLE PARAMETERS

2 X SVOCs	1 X Dis. Mer.											
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## SAMPLE RATE

0.4	0.4											
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Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute

2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks: 

## FIELD EQUIPMENT

pH Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	Number of Bottles <u>2 X 1LA</u>
Temperature Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	<u>1 X 250ml poly</u>
Turbidity Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	
Spec. Elec. Cond. Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	Field Notebook <u>71</u>
ORP Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	
D.O. Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	Sample Method <u>Low Flow</u>
Interface Probe <u>Solinst</u>	Serial Number <u>25582</u>	
PID/OVA <u>Mini-Rae</u>	Serial Number <u>00320</u>	
Pump <u>Geo-Pump</u>	Serial Number <u>BA0041</u>	
Filter Apparatus <u>NA</u>		Discharge Water Containerized <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No





TETRA TECH P.A. INC.

# LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Page 1 of 1Date Januray 31, 2005

Well Name <u>W1-19</u>	Screen Interval <u>14 - 19</u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 86 Site 1 R7/05</u>	Station Elevation <u>GND</u> TOC <u>      </u>	
Project No. <u>1990 . 086E</u>	Static Water Level (from TOC) / Time <u>4.76/1214</u> <u>4.75/1215</u> <u>4.77/1216</u>	
Well Location <u>Site 1</u>	Average Water Level (from TOC) <u>4.76</u>	
Sample Date <u>February 1, 2005</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>0</u>
Sampling Personnel <u>Ogle</u>	Reference Elevation <u>      </u>	PID Reading (TOC) <u>0</u>
<u>Ramos</u>	Static Elevation <u>      </u>	Notes <u>      </u>
	Well Depth MEAS <u>21.20</u> RPTD <u>      </u>	Feet of Water <u>      </u>
Sample ID <u>86-S1-086</u>	Depth of Bottom of Tubing <u>16.5</u>	
Duplicate ID <u>NA</u>	Depth to Water (w/ Tubing in well) <u>4.77</u>	

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
1243	0.4	0.27	6.9	279	28.5	47946	0.7	0.25				
1246	0.4	0.15	6.9	286	27	48361	0.6	0.5				
1249	0.4	0.11	6.9	291	26.38	47226	1.6	0.75				
1252	0.4	0.1	6.8	163	25.82	46988	2.5	1				
1255	0.4	0.08	6.8	159	25.02	48702	1.6	1.3				
1258	0.4	0.07	6.8	156	24.99	48829	1.5	1.5				
1300	0.4	0.07	6.8	155	24.98	48777	1.4	1.8				
1300	Well stabilized - began sampling											

Notes:

1. Purge rate = 0.2 - 0.5 L/minute

2. Drawdown shall be &lt;0.33 foot

## SAMPLE PARAMETERS

2 X SVOCs	1 X Dis. Mer.											
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## SAMPLE RATE

0.4	0.4											
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Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute

2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks:       

## FIELD EQUIPMENT

pH Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	Number of Bottles <u>2 X 1LA</u>
Temperature Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	<u>1 X 250ml poly</u>
Turbidity Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	
Spec. Elec. Cond. Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	Field Notebook <u>67</u>
ORP Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	
D.O. Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	Sample Method <u>Low Flow</u>
Interface Probe <u>Solinst</u>	Serial Number <u>25582</u>	
PID/OVA <u>Mini-Rae</u>	Serial Number <u>00320</u>	
Pump <u>Geo-Pump</u>	Serial Number <u>BA0041</u>	
Filter Apparatus <u>NA</u>		Discharge Water Containerized <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No



TETRA TECH P.V. INC.

# LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Page 1 of 1Date January 31, 2005

Well Name <u>W1-22</u>	Screen Interval <u>NA</u>	Station Elevation <u>GND</u> TOC <u>  </u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 86 Site 1 R7/05</u>	Static Water Level (from TOC) / Time <u>3.45/1237</u> <u>3.45/1238</u> <u>3.45/1239</u>	Average Water Level (from TOC) <u>3.45</u>	
Project No. <u>1990 . 088E</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>0</u>	
Well Location <u>Site 1</u>	Reference Elevation <u>  </u>	PID Reading (TOC) <u>0</u>	
Sample Date <u>February 2, 2005</u>	Static Elevation <u>  </u>	Notes <u>  </u>	
Sampling Personnel <u>Ogle</u>	Well Depth MEAS <u>6.69</u> RPTD <u>  </u>	Feet of Water <u>  </u>	
<u>Ramos</u>	Depth of Bottom of Tubing <u>6</u>		
Sample ID <u>86-S1-091</u>	Depth to Water (w/ Tubing in well) <u>3.45</u>		
Duplicate ID <u>NA</u>			

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
1308	0.4	0.4	7	153	22	10183	2.3	0.25				
1311	0.4	0.22	7	144	23.1	3041	2	0.5				
1314	0.4	0.1	7	133	23.73	3417	1.9	0.75				
1317	0.4	0.06	7	130	23.98	3398	1	1				
1320	0.4	0.07	7	128	24	3471	1.4	1.3				
1323	0.4	0.06	7	127	24.06	3444	1.3	1.6				
1330 start												

Notes:

1. Purge rate = 0.2 - 0.5 L/minute

2. Drawdown shall be &lt;0.33 foot

## SAMPLE PARAMETERS

2 X SVOCs	1 X Dis. Mer.						
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## SAMPLE RATE

0.4	0.4						
-----	-----	--	--	--	--	--	--

Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute

2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks:  

## FIELD EQUIPMENT

pH Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	Number of Bottles <u>2 X 1LA</u>
Temperature Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	<u>1 X 250ml poly</u>
Turbidity Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	
Spec. Elec. Cond. Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	Field Notebook <u>69</u>
ORP Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	
D.O. Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	Sample Method <u>Low Flow</u>
Interface Probe <u>Solinst</u>	Serial Number <u>25582</u>	
PID/OVA <u>Mini-Rae</u>	Serial Number <u>00320</u>	
Pump <u>Geo-Pump</u>	Serial Number <u>BA0041</u>	
Filter Apparatus <u>NA</u>		Discharge Water Containerized <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No



TETRA TECH, INC.

# LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Page 1 of 1Date January 31, 2005

Well Name <u>W1-23</u>	Screen Interval <u>NA</u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 86 Site 1 R7/05</u>	Station Elevation <u>GND</u> TOC <u>      </u>	
Project No. <u>1990 - 086E</u>	Static Water Level (from TOC) / Time <u>5.61/1227</u> <u>5.61/1228</u> <u>5.60/1229</u>	
Well Location <u>Site 1</u>	Average Water Level (from TOC) <u>5.61</u>	
Sample Date <u>February 1, 2005</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>0</u>
Sampling Personnel <u>Ogle</u>	Reference Elevation <u>      </u>	PID Reading (TOC) <u>0</u>
<u>Ramos</u>	Static Elevation <u>      </u>	Notes <u>      </u>
	Well Depth MEAS <u>6.00</u> RPTD <u>      </u>	Feet of Water <u>      </u>
Sample ID <u>86-S1-087</u>	Depth of Bottom of Tubing <u>6.0</u>	
Duplicate ID <u>NA</u>	Depth to Water (w/ Tubing in well) <u>5.61</u>	

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
1414	0.4	0.3	7.2	157	28.4	82139	err	0.25				
1417	0.4	0.22	7.2	154	27.7	82873	err	0.5				
1420	0.4	0.2	7.3	157	27.4	83966	err	0.75				
1423	0.4	0.2	7.3	159	27.7	85362	err	1				
1426	0.4	0.2	7.3	156	27.7							
Well emp												

Notes:

1. Purge rate = 0.2 - 0.5 L/minute

2. Drawdown shall be &lt;0.33 foot

## SAMPLE PARAMETERS

3 X SVOCs	1 X Dis. Mer.						
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## SAMPLE RATE

0.4	0.4						
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Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute

2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks:       

## FIELD EQUIPMENT

pH Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	Number of Bottles <u>3 X 1LA</u>
Temperature Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	<u>1 X 250ml poly</u>
Turbidity Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	
Spec. Elec. Cond. Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	Field Notebook <u>68</u>
ORP Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	
D.O. Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	Sample Method <u>Low Flow</u>
Interface Probe <u>Solinst</u>	Serial Number <u>25582</u>	
PID/OVA <u>Mini-Rae</u>	Serial Number <u>00320</u>	
Pump <u>Geo-Pump</u>	Serial Number <u>BA0041</u>	
Filter Apparatus <u>NA</u>		Discharge Water Containerized <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No



TETRA TECH, INC.

# LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Page 1 of 1Date January 31, 2005

Well Name <u>W1-24</u>	Screen Interval <u>6 - 16</u>	Station Elevation <u>GND</u> TOC <u>          </u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 86 Site 1 R7/05</u>	Static Water Level (from TOC) / Time <u>6.98/1251</u> <u>6.98/1252</u> <u>6.99/1253</u>		
Project No. <u>1990 - 086E</u>	Average Water Level (from TOC) <u>6.98</u>		
Well Location <u>Site 1</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>0</u>	
Sample Date <u>February 2, 2005</u>	Reference Elevation <u>          </u>	PID Reading (TOC) <u>0</u>	
Sampling Personnel <u>Ogle</u>	Static Elevation <u>          </u>	Notes <u>          </u>	
<u>Ramos</u>	Well Depth MEAS <u>20.28</u> RPTD <u>          </u>	Feet of Water <u>          </u>	
Sample ID <u>86-S1-094</u>	Depth of Bottom of Tubing <u>11</u>		
Duplicate ID <u>NA</u>	Depth to Water (w/ Tubing in well) <u>6.98</u>		

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
1515	0.4	0.21	7	84	24.08	50279	1.4	0.25				
1518	0.4	0.11	7	85	24.19	49792	1.4	0.5				
1521	0.4	0.08	7	73	24.24	49489	1.3	0.75				
1524	0.4	0.08	6.9	64	24.65	49590	1.3	1				
1527	0.4	0.07	6.9	61	24.8	49856	0.4	1.3				
1530	0.4	0.07	6.9	60	24.74	49771	0.4	1.6				
1533	0.4	0.08	6.9	55	24.67	49680	0.4	1.8				
1536	0.4	0.08	6.9	57	24.69	49663	0.3	2				
1539	0.4	0.08	6.9	58	24.7	40692	0.3	2.25				
1545 start												

Notes:

1. Purge rate = 0.2 - 0.5 L/minute

2. Drawdown shall be &lt;0.33 foot

## SAMPLE PARAMETERS

2 X SVOCs	1 X Dis. Mer.											
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## SAMPLE RATE

0.4	0.4											
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Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute

2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks:           

## FIELD EQUIPMENT

pH Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	Number of Bottles <u>2 X 1LA</u>
Temperature Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	<u>1 X 250ml poly</u>
Turbidity Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	Field Notebook <u>71</u>
Spec. Elec. Cond. Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	Sample Method <u>Low Flow</u>
ORP Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	
D.O. Meter <u>Hydrolab</u>	Serial Number <u>3656</u>	
Interface Probe <u>Solinst</u>	Serial Number <u>25582</u>	
PID/OVA <u>Mini-Rae</u>	Serial Number <u>00320</u>	
Pump <u>Geo-Pump</u>	Serial Number <u>BA0041</u>	
Filter Apparatus <u>NA</u>		Discharge Water Containerized <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

**MARCH 2005**



TETRA TECH FW, INC.

LOW-FLOW GROUNDWATER  
SAMPLING DATA SHEETPage 1 of 1Date 3/7/05

Well Name <u>W1-1R</u>	Screen Interval <u>14.3-24.3</u>	Station Elevation <u>GND</u> TOC <u>      </u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 86-Site 1, R8/05</u>	Static Water Level (from TOC) / Time <u>7.20/0904</u> <u>7.21/0905</u> <u>7.21/0906</u>		
Project No. <u>1990.086E</u>	Average Water Level (from TOC) <u>7.21</u>		
Well Location <u>Moffett-Site 1</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>0 ppb</u>	
Sample Date <u>3/7/05</u>	Reference Elevation <u>      </u>	PID Reading (TOC) <u>0 ppb</u>	
Sampling Personnel <u>D. HARRISON</u>	Static Elevation <u>      </u>	Notes <u>      </u>	
<u>M. RAMOS</u>	Well Depth MEAS <u>27.46</u> RPTD <u>      </u>	Feet of Water <u>      </u>	
Sample ID <u>86-S1-096</u>	Depth of Bottom of Tubing <u>19.3</u>		
Duplicate ID <u>N/A</u>	Depth to Water (w/ Tubing in Well) <u>7.21</u>		

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
1019	.4	.43	7.3	455	23.1	1812	0	.1			7.23	
1022	.4	.32	7.3	440	23.0	2231	0	.3			7.26	
1025	.4	.17	7.3	417	22.8	3125	0	.5			7.27	
1028	.4	0.12	7.3	394	22.9	4320	0	.7			7.27	
1031	.4	0.09	7.3	391	22.8	5682	0	.9			7.24	
1034	.4	0.07	7.3	388	22.9	5925	0	1.1			7.27	
1035	Collect Sample											

Notes:

- Purge rate = 0.2 - 0.5 L/minute
- Drawdown shall be <0.33 foot

## SAMPLE PARAMETERS

2XSVOCS	1xD.MERC.											
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## SAMPLE RATE

.4	.4											
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Notes:

- Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
- Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: Good - Needs paintRemarks: Odor-free / Colorless

## FIELD EQUIPMENT

pH Meter <u>HYDROLAB</u>	Serial Number <u>#R10797</u>
Temperature Meter <u>HYDROLAB</u>	Serial Number <u>#R10797</u>
Turbidity Meter <u>HYDROLAB</u>	Serial Number <u>#R10797</u>
Spec. Elec. Cond. Meter <u>HYDROLAB</u>	Serial Number <u>#R10797</u>
ORP Meter <u>HYDROLAB</u>	Serial Number <u>#R10797</u>
D.O. Meter <u>HYDROLAB</u>	Serial Number <u>#R10797</u>
Interface Probe <u>SOLINST</u>	Serial Number <u>#25582</u>
PID/OVA <u>MINI-RAE</u>	Serial Number <u>#00320</u>
Pump <u>GEO-PUMP</u>	Serial Number <u>BA0041</u>
Filter Apparatus <u>GEO-.45 MICRON</u>	

Number of Bottles 2X1LA  
1X250mLPField Notebook Pg. 74Sample Method Low FlowDischarge Water Containerized ☒ Yes ☐ No



TETRA TECH FW, INC.

LOW-FLOW GROUNDWATER  
SAMPLING DATA SHEETPage 1 of 1Date 3/7/05

Well Name <u>W1-5</u>	Screen Interval <u>14.5-19.5</u>	Station Elevation <u>GND</u> TOC <u>Immiscible Phases Present</u> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 86-Site 1, R8/05</u>	Static Water Level (from TOC) / Time <u>4.80/0947</u> <u>4.80/0947</u> <u>4.80/0948</u>	Average Water Level (from TOC) <u>4.80</u>
Project No. <u>1990.086E</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>Open</u>
Well Location <u>Moffett Site 1</u>	Reference Elevation <u></u>	PID Reading (TOC) <u>Open</u>
Sample Date <u>3/8/05</u>	Static Elevation <u></u>	Notes <u></u>
Sampling Personnel <u>D. HARRISON</u>	Well Depth MEAS <u>21.28</u> RPTD <u></u>	Feet of Water <u></u>
<u>M. RAMOS</u>	Depth of Bottom of Tubing <u>17</u>	
Sample ID <u>86-S1-103</u>	Depth to Water (w/ Tubing in Well) <u>4.80</u>	
Duplicate ID <u>86-S1-104</u>		

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading Location	Value	Depth to Water <sup>2</sup> (ft)	Comments
0950	.4	2.40	7.3	383	24.4	1216	9.0	.1			4.82	
0953	.4	1.62	7.3	351	23.6	4390	6.2	.3			4.84	
0956	.4	0.23	7.3	333	22.1	8710	2.7	.5			4.85	
0959	.4	0.18	7.3	244	22.5	10237	2.4	.7			4.86	
1002	.4	0.15	7.3	228	22.7	10105	2.0	.9			4.87	
1005	.4	0.11	7.3	211	23.0	10431	2.0	1.1			4.88	
1007	Collect	Sample										
1015	Collect	Field Duplicate										

Notes:

1. Purge rate = 0.2 - 0.5 L/minute

2. Drawdown shall be &lt;0.33 foot

## SAMPLE PARAMETERS

SVOC's	D.MERC.											
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## SAMPLE RATE

.4	.4											
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Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute

2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks: 

## FIELD EQUIPMENT

pH Meter HYDROLAB  
 Temperature Meter HYDROLAB  
 Turbidity Meter HYDROLAB  
 Spec. Elec. Cond. Meter HYDROLAB  
 ORP Meter HYDROLAB  
 D.O. Meter HYDROLAB  
 Interface Probe SOLINST  
 PID/OVA MINI-RAE  
 Pump GEO-PUMP  
 Filter Apparatus GEO-45 MICRON

Serial Number #R10797  
 Serial Number #R10797  
 Serial Number #R10797  
 Serial Number #R10797  
 Serial Number #R10797  
 Serial Number #R10797  
 Serial Number #25582  
 Serial Number #00320  
 Serial Number BA0041

Number of Bottles 4x1LA  
2x250mLP

Field Notebook Pgs 78 + 79Sample Method Low FlowDischarge Water Containerized ☒ Yes ☐ No



TETRA TECH FW, INC.

LOW-FLOW GROUNDWATER  
SAMPLING DATA SHEETPage 1 of 1Date 3/7/05

Well Name <u>W1-8</u>	Screen Interval <u>13-18</u>	Station Elevation <u>GND</u> TOC <u>          </u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 86-Site 1, R8/05</u>	Static Water Level (from TOC) / Time <u>4.88/0951</u> <u>4.88/0952</u> <u>4.88/0952</u>		
Project No. <u>1990,086E</u>	Average Water Level (from TOC) <u>4.88</u>		
Well Location <u>Moffett- Site 1</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>Oppm</u>	
Sample Date <u>3/8/05</u>	Reference Elevation <u>          </u>	PID Reading (TOC) <u>Oppm</u>	
Sampling Personnel <u>D. HARRISON</u>	Static Elevation <u>          </u>	Notes <u>          </u>	
<u>M. RAMOS</u>	Well Depth MEAS <u>22.70</u> RPTD <u>          </u>	Feet of Water <u>          </u>	
Sample ID <u>86-S1-105</u>	Depth of Bottom of Tubing <u>15.5</u>		
Duplicate ID <u>n/a</u>	Depth to Water (w/ Tubing in Well) <u>4.88</u>		

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
1050	.4	0.86	7.4	360	26.5	1402	2.5	.1			4.91	
1053	.4	0.52	7.4	360	24.8	3270	1.0	.3			4.93	
1056	.4	0.51	7.4	360	24.2	9470	3.8	.5			4.94	
1059	.4	0.88	7.4	359	23.8	9380	4.4	.7			4.96	
1052	.4	0.05	7.4	359	23.6	9240	4.1	.9			4.97	
1055	Collect Sample											

Notes:

1. Purge rate = 0.2 - 0.5 L/minute

2. Drawdown shall be &lt;0.33 foot

## SAMPLE PARAMETERS

SVOC's	D.MERC.											
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## SAMPLE RATE

.4 L/min	.4 c/min											
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Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute

2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks: Slight green / Slight N2S odor

## FIELD EQUIPMENT

pH Meter HYDROLAB  
 Temperature Meter HYDROLAB  
 Turbidity Meter HYDROLAB  
 Spec. Elec. Cond. Meter HYDROLAB  
 ORP Meter HYDROLAB  
 D.O. Meter HYDROLAB  
 Interface Probe SOLINST  
 PID/OVA MINI-RAE  
 Pump GEO-PUMP  
 Filter Apparatus GEO-45 MICRON

Serial Number #R10797  
 Serial Number #R10797  
 Serial Number #R10797  
 Serial Number #R10797  
 Serial Number #R10797  
 Serial Number #R10797  
 Serial Number #25582  
 Serial Number #00320  
 Serial Number BA0041

Number of Bottles 2x1LA  
1x250mLP

Field Notebook Pg. 79Sample Method Low FlowDischarge Water Containerized ☒ Yes ☐ No





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LOW-FLOW GROUNDWATER  
SAMPLING DATA SHEETPage 1 of 1Date 3/7/05

Well Name <u>W1-12R</u>	Screen Interval <u>15-25</u>	Station Elevation <u>GND</u> TOC <u>          </u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 86-Site 1, RB/05</u>	Static Water Level (from TOC) / Time <u>2.02/0938</u> <u>2.02/0939</u> <u>2.02/0940</u>		
Project No. <u>1990.086E</u>	Average Water Level (from TOC) <u>2.02</u>		
Well Location <u>Moffett-Site 1</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>Open</u>	
Sample Date <u>3/7/05</u>	Reference Elevation <u>          </u>	PID Reading (TOC) <u>Open</u>	
Sampling Personnel <u>D. HARRISON</u>	Static Elevation <u>          </u>	Notes <u>          </u>	
<u>M. RAMOS</u>	Well Depth MEAS <u>          </u> RPTD <u>          </u>	Feet of Water <u>          </u>	
Sample ID <u>86-S1-101</u>	Depth of Bottom of Tubing <u>20</u>		
Duplicate ID <u>N/A</u>	Depth to Water (w/ Tubing in Well) <u>2.02</u>		

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
1445	.4	0.61	7.1	355	27.1	1210	40	.1			2.02	
1448	.4	0.33	7.1	341	26.7	1362	44	.3			2.02	
1451	.4	0.15	7.1	325	25.6	1475	39	.5			2.02	
1454	.4	0.11	7.1	294	25.4	1492	34	.7			2.02	
1457	.4	0.08	7.1	290	25.1	1522	35	.9			2.02	
1500	Collect Sample											

Notes:

1. Purge rate = 0.2 - 0.5 L/minute
2. Drawdown shall be <0.33 foot

## SAMPLE PARAMETERS

SVOCs	D.MERC											
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## SAMPLE RATE

.4 L/min	.4 L/min											
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Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks: Green/turbid water - slight H<sub>2</sub>S odor

## FIELD EQUIPMENT

pH Meter <u>HYDROLAB</u>	Serial Number <u>#R10797</u>	Number of Bottles <u>2X11A</u>
Temperature Meter <u>HYDROLAB</u>	Serial Number <u>#R10797</u>	<u>1x250mLP</u>
Turbidity Meter <u>HYDROLAB</u>	Serial Number <u>#R10797</u>	
Spec. Elec. Cond. Meter <u>HYDROLAB</u>	Serial Number <u>#R10797</u>	
ORP Meter <u>HYDROLAB</u>	Serial Number <u>#R10797</u>	Field Notebook <u>Pgs 76+77</u>
D.O. Meter <u>HYDROLAB</u>	Serial Number <u>#R10797</u>	
Interface Probe <u>SOLINST</u>	Serial Number <u>#25582</u>	Sample Method <u>Low Flow</u>
PID/OVA <u>MINI-RAE</u>	Serial Number <u>#00320</u>	
Pump <u>GEO-PUMP</u>	Serial Number <u>BA0041</u>	
Filter Apparatus <u>GEO-45 MICRON</u>		Discharge Water Containerized <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No



TETRA TECH FW, INC.

LOW-FLOW GROUNDWATER  
SAMPLING DATA SHEETPage 1 of 1Date 3/7/05

Well Name <u>W1-14</u>	Screen Interval <u>4.1-14.1</u>	Station Elevation <u>GND</u> TOC <u>          </u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 86-Site 1, R8/05</u>	Static Water Level (from TOC) / Time <u>4.60/0930</u> <u>4.60/0951</u> <u>4.60/0932</u>		
Project No. <u>1990.088E</u>	Average Water Level (from TOC) <u>4.60</u>		
Well Location <u>Moffett- Site 1</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>Open</u>	
Sample Date <u>3/7/05</u>	Reference Elevation <u>          </u>	PID Reading (TOC) <u>Open</u>	
Sampling Personnel <u>D. HARRISON</u>	Static Elevation <u>          </u>	Notes <u>          </u>	
<u>M. RAMOS</u>	Well Depth MEAS <u>17.71</u> RPTD <u>          </u>	Feet of Water <u>          </u>	
Sample ID <u>88-S1-100</u>	Depth of Bottom of Tubing <u>9.1</u>		
Duplicate ID <u>N/A</u>	Depth to Water (w/ Tubing in Well) <u>4.60</u>		

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
1327	.4	1.06	7.0	176	16.9	61095	8.6	.1			4.61	
1330	.4	0.80	7.1	150	17.0	60987	7.0	.3			4.62	
1333	.4	0.52	7.1	144	17.2	60536	5.2	.5			4.62	
1336	.4	0.27	7.1	142	17.1	60289	3.3	.7			4.62	
1339	.4	0.25	7.1	138	17.2	60376	3.9	.9			4.63	
1340	Collect Sample											

## Notes:

- Purge rate = 0.2 - 0.5 L/minute
- Drawdown shall be <0.33 foot

## SAMPLE PARAMETERS

SVOCs	D.MERC.											
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## SAMPLE RATE

.4 L/min	.4 L/min											
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## Notes:

- Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
- Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks:           

## FIELD EQUIPMENT

pH Meter <u>HYDROLAB</u>	Serial Number <u>#R10797</u>	Number of Bottles <u>2X1LA</u>
Temperature Meter <u>HYDROLAB</u>	Serial Number <u>#R10797</u>	<u>1X250mLP</u>
Turbidity Meter <u>HYDROLAB</u>	Serial Number <u>#R10797</u>	
Spec. Elec. Cond. Meter <u>HYDROLAB</u>	Serial Number <u>#R10797</u>	
ORP Meter <u>HYDROLAB</u>	Serial Number <u>#R10797</u>	Field Notebook <u>Pgs. 75+76</u>
D.O. Meter <u>HYDROLAB</u>	Serial Number <u>#R10797</u>	
Interface Probe <u>SOLINST</u>	Serial Number <u>#25582</u>	Sample Method <u>Low Flow</u>
PID/OVA <u>MINI-RAE</u>	Serial Number <u>#00320</u>	
Pump <u>GEO-PUMP</u>	Serial Number <u>BA0041</u>	
Filter Apparatus <u>GEO-45 MICRON</u>		Discharge Water Containerized <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No



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LOW-FLOW GROUNDWATER  
SAMPLING DATA SHEETPage 1 of 1Date 3/7/05

Well Name <u>W1-15</u>	Screen Interval <u>4.4-14.4</u>	Station Elevation <u>GND</u> TOC	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 86-Site 1, R8/05</u>	Static Water Level (from TOC) / Time <u>4.82/0408</u> <u>4.82/0909</u> <u>4.82/0910</u>	Average Water Level (from TOC) <u>4.82</u>	
Project No. <u>1990.086E</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>Oppn</u>	
Well Location <u>Moffett Site 1</u>	Reference Elevation	PID Reading (TOC) <u>Oppn</u>	
Sample Date <u>3/7/05</u>	Static Elevation	Notes	
Sampling Personnel <u>D. HARRISON</u> <u>M. RAMOS</u>	Well Depth MEAS <u>17.75</u> RPTD	Feet of Water	
Sample ID <u>86-S1-097</u>	Depth of Bottom of Tubing <u>9.4</u>		
Duplicate ID <u>collect ms/msd</u>	Depth to Water (w/ Tubing in Well) <u>4.82</u>		

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	EH/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading	Depth to Water <sup>2</sup> (ft)	Comments
1114	.4	0.54	6.8	413	25.8	26852	100	.1		4.86	
1117	.4	0.38	6.8	352	24.4	27736	72	.3		4.87	
1120	.4	0.16	6.9	136	23.7	29210	41	.5		4.87	
1123	.4	0.10	6.9	44	22.4	30144	19	.7		4.89	
1126	.4	0.08	6.9	45	22.3	30544	9	.9		4.90	
1129	.4	0.07	6.9	44	22.1	30462	5	1.1		4.92	
1130	Collect Sample										

Notes:

1. Purge rate = 0.2 - 0.5 L/minute
2. Drawdown shall be <0.33 foot

## SAMPLE PARAMETERS

SVOCs	D.MERC.										
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## SAMPLE RATE

.4	.4										
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Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks: Green / Turbid water

## FIELD EQUIPMENT

pH Meter HYDROLAB  
 Temperature Meter HYDROLAB  
 Turbidity Meter HYDROLAB  
 Spec. Elec. Cond. Meter HYDROLAB  
 ORP Meter HYDROLAB  
 D.O. Meter HYDROLAB  
 Interface Probe SOLINST  
 PID/OVA MINI-RAE  
 Pump GEO-PUMP  
 Filter Apparatus GEO-45 MICRON

Serial Number #R10797  
 Serial Number #R10797  
 Serial Number #R10797  
 Serial Number #R10797  
 Serial Number #R10797  
 Serial Number #R10797  
 Serial Number #25582  
 Serial Number #00320  
 Serial Number BA0041

Number of Bottles 6X1LA  
3X250mLP

Field Notebook Pgs. 74 + 75Sample Method Low FlowDischarge Water Containerized ☒ Yes ☐ No



TETRA TECH P.W., INC.

LOW-FLOW GROUNDWATER  
SAMPLING DATA SHEETPage 1 of 1Date 3/7/05

Well Name <u>W1-16</u>	Screen Interval <u>5.4-15.4</u>	Station Elevation <u>GND</u> TOC <u>          </u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 86-Site 1, R8/05</u>	Static Water Level (from TOC) / Time <u>7.10/0958</u> <u>7.10/0959</u> <u>7.10/1000</u>	Average Water Level (from TOC) <u>7.10</u>	
Project No. <u>1990.086E</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>Open</u>	
Well Location <u>Moffett- Site 1</u>	Reference Elevation <u>          </u>	PID Reading (TOC) <u>Open</u>	
Sample Date <u>3/8/05</u>	Static Elevation <u>          </u>	Notes <u>          </u>	
Sampling Personnel <u>D. HARRISON</u> <u>M RAMOS</u>	Well Depth MEAS <u>18.24</u> RPTD <u>          </u>	Feet of Water <u>          </u>	
Sample ID <u>86-S1-107</u>	Depth of Bottom of Tubing <u>10.4</u>		
Duplicate ID <u>N/A</u>	Depth to Water (w/ Tubing in Well) <u>          </u>		

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
1610	.4	0.29	6.9	120	33.8	3351	4.7	.1			7.13	
1613	.4	0.21	6.9	107	33.2	4920	5.6	.3			7.15	
1614	.4	0.11	6.9	99	31.4	8516	4.9	.5			7.18	
1619	.4	0.08	7.0	97	30.6	9232	5.1	.7			7.22	
1622	.4	0.06	7.0	96	30.5	9477	4.0	.9			7.24	
1625	Collect Sample											

Notes:

- Purge rate = 0.2 - 0.5 L/minute
- Drawdown shall be <0.33 foot

## SAMPLE PARAMETERS

SVOC's	D.MERC.											
--------	---------	--	--	--	--	--	--	--	--	--	--	--

## SAMPLE RATE

.4 L/min	.4 L/min											
----------	----------	--	--	--	--	--	--	--	--	--	--	--

Notes:

- Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
- Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks: Clear / slight H<sub>2</sub>S odor

## FIELD EQUIPMENT

pH Meter <u>HYDROLAB</u>	Serial Number <u>#R10797</u>	Number of Bottles <u>2X11A</u>
Temperature Meter <u>HYDROLAB</u>	Serial Number <u>#R10797</u>	<u>1X250mL.P</u>
Turbidity Meter <u>HYDROLAB</u>	Serial Number <u>#R10797</u>	
Spec. Elec. Cond. Meter <u>HYDROLAB</u>	Serial Number <u>#R10797</u>	
ORP Meter <u>HYDROLAB</u>	Serial Number <u>#R10797</u>	Field Notebook <u>Pgs. 80+81</u>
D.O. Meter <u>HYDROLAB</u>	Serial Number <u>#R10797</u>	Sample Method <u>Low Flow</u>
Interface Probe <u>SOLINST</u>	Serial Number <u>#25582</u>	
PID/OVA <u>MINI-RAE</u>	Serial Number <u>#00320</u>	
Pump <u>GEO-PUMP</u>	Serial Number <u>BA0041</u>	
Filter Apparatus <u>GEO-45 MICRON</u>		Discharge Water Containerized <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No



TETRA TECH P.W., INC.

LOW-FLOW GROUNDWATER  
SAMPLING DATA SHEETPage 1 of 1Date 3/7/05

Well Name <u>W1-19</u>	Screen Interval <u>14-19</u>	Station Elevation <u>GND</u> TOC <u>    </u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 86-Site 1, R8/05</u>	Static Water Level (from TOC) / Time <u>4.18/0922</u> <u>4.18/0923</u> <u>4.18/0924</u>	Average Water Level (from TOC) <u>4.18</u>	
Project No. <u>1990.086E</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>Oppn</u>	
Well Location <u>Moffett, Site 1</u>	Reference Elevation <u>    </u>	PID Reading (TOC) <u>Oppn</u>	
Sample Date <u>3/7/05</u>	Static Elevation <u>    </u>	Notes <u>    </u>	
Sampling Personnel <u>D. HARRISON</u> <u>M. RAMOS</u>	Well Depth MEAS <u>21.20</u> RPTD <u>    </u>	Feet of Water <u>    </u>	
Sample ID <u>86-S1-098</u>	Depth of Bottom of Tubing <u>16.5</u>		
Duplicate ID <u>N/A</u>	Depth to Water (w/ Tubing in Well) <u>4.18</u>		

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	EH/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading Location	PID/OVA Reading Value	Depth to Water <sup>2</sup> (ft)	Comments
1230	.4	0.70	7.0	317	30.2	7.5436	1.5	.1			4.20	
1233	.4	0.62	7.0	251	29.8	11520	1.7	.3			4.22	
1236	.4	0.17	7.0	245	29.0	12260	0.4	.5			4.24	
1239	.4	0.14	7.0	236	28.1	13450	0.6	.8			4.27	
1240	Collect Sample											

## Notes:

- Purge rate = 0.2 - 0.5 L/minute
- Drawdown shall be <0.33 foot

## SAMPLE PARAMETERS

SVOCs	D.MERC.											
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## SAMPLE RATE

.4 L/min	.4 L/min											
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## Notes:

- Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
- Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks: Colorless/Odorless

## FIELD EQUIPMENT

pH Meter <u>HYDROLAB</u>	Serial Number <u>#R10797</u>	Number of Bottles <u>2X1LA</u>
Temperature Meter <u>HYDROLAB</u>	Serial Number <u>#R10797</u>	<u>1x250mLP</u>
Turbidity Meter <u>HYDROLAB</u>	Serial Number <u>#R10797</u>	
Spec. Elec. Cond. Meter <u>HYDROLAB</u>	Serial Number <u>#R10797</u>	
ORP Meter <u>HYDROLAB</u>	Serial Number <u>#R10797</u>	Field Notebook <u>Pg. 75</u>
D.O. Meter <u>HYDROLAB</u>	Serial Number <u>#R10797</u>	Sample Method <u>Low Flow</u>
Interface Probe <u>SOLINST</u>	Serial Number <u>#25582</u>	
PID/OVA <u>MINI-RAE</u>	Serial Number <u>#00320</u>	
Pump <u>GEO-PUMP</u>	Serial Number <u>BA0041</u>	
Filter Apparatus <u>GEO-45 MICRON</u>		Discharge Water Containerized <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No



TETRA TECH F.W. INC.

LOW-FLOW GROUNDWATER  
SAMPLING DATA SHEETPage 1 of 1Date 3/7/05Well Name W1-22Project CTO 86-Site 1, R8/05Project No. 1990.086EWell Location Moffett- Site 1Sample Date 3/3/05Sampling Personnel D. HARRISONM. RAMOSSample ID 86-S1-102Duplicate ID N/AScreen Interval N/AStation Elevation GND TOCStatic Water Level (from TOC) / Time 2.95/0942 2.95/0943 2.95/0944Average Water Level (from TOC) 2.95Reference Point TOC

Reference Elevation

Static Elevation

Well Depth MEAS 6.64 RPTDDepth of Bottom of Tubing 6.00Depth to Water (w/ Tubing in Well) 2.95Immiscible Phases Present ☐ Yes ☒ NoPID Readings (background) OppuPID Reading (TOC) Oppu

Notes

Feet of Water

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
0830	.4	0	6.3	191	14.6	18.2	450	.1			2.99	
0833	.4	0	6.4	175	14.9	364	327	.3			3.04	
0836	.4	0	6.4	160	15.3	2192	150	.5			3.07	
0839	.4	0	6.5	150	15.3	2108	95	.7			3.08	
0842	.4	0	6.7	148	15.7	5213	87	.9			3.09	
0845	.4	0	6.9	141	15.9	7246	82.8	1.1			3.10	
0848	.4	0.09	6.9	138	16.4	9650	99	1.3			3.11	
0850	Collect Sample											

## Notes:

- Purge rate = 0.2 - 0.5 L/minute
- Drawdown shall be <0.33 foot

## SAMPLE PARAMETERS

2xSVOC's	1xD.MERC.											
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## SAMPLE RATE

.4 L/min	.4 L/min											
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## Notes:

- Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
- Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks: Brown turbidity / slight H<sub>2</sub>S odor

## FIELD EQUIPMENT

pH Meter HYDROLABTemperature Meter HYDROLABTurbidity Meter HYDROLABSpec. Elec. Cond. Meter HYDROLABORP Meter HYDROLABD.O. Meter HYDROLABInterface Probe SOLINSTPID/OVA MINI-RAEPump GEO-PUMPFilter Apparatus GEO-45 MICRONSerial Number #R10797Serial Number #R10797Serial Number #R10797Serial Number #R10797Serial Number #R10797Serial Number #R10797Serial Number #25582Serial Number #00320Serial Number BA0041Number of Bottles 2x1LA1x250mLPField Notebook Pg. 78Sample Method Low FlowDischarge Water Containerized ☒ Yes ☐ No



TETRA TECH FW, INC.

LOW-FLOW GROUNDWATER  
SAMPLING DATA SHEETPage 1 of 1Date 3/7/05

Well Name <u>W1-23</u>	Screen Interval <u>n/a</u>	Station Elevation <u>GND</u> TOC <u>  </u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 86-Site 1, R8/05</u>	Static Water Level (from TOC) / Time <u>5.60/0934</u> <u>5.60/0935</u> <u>5.60/0936</u>		
Project No. <u>1990.086E</u>	Average Water Level (from TOC) <u>5.60</u>		
Well Location <u>Moffett- Site 1</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>Opp</u>	
Sample Date <u>  </u>	Reference Elevation <u>  </u>	PID Reading (TOC) <u>Opp</u>	
Sampling Personnel <u>D. HARRISON</u>	Static Elevation <u>  </u>	Notes <u>  </u>	
<u>M. RAMOS</u>	Well Depth MEAS <u>5.75</u> RPTD <u>6.0</u>	Feet of Water <u>  </u>	
Sample ID <u>86-S1-099</u>	Depth of Bottom of Tubing <u>5.85</u>		
Duplicate ID <u>N/A</u>	Depth to Water (w/ Tubing in Well) <u>5.60</u>		

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
1415	0.31	0.63	7.1	171	28.2	16.4	1000+	0.1			5.65	
1418	0.3	0.21	7.1	151	26.9	19.5	826	0.2			5.76	
1421	Trench Ran dry							0.25			5.84	

## Notes:

- Purge rate = 0.2 - 0.5 L/minute
- Drawdown shall be <0.33 foot

## SAMPLE PARAMETERS

SvOCs	D.MERC.											
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## SAMPLE RATE

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## Notes:

- Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
- Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks: Brown/turbid water - slight H<sub>2</sub>S odor

## FIELD EQUIPMENT

pH Meter <u>HYDROLAB</u>	Serial Number <u>#R10797</u>	Number of Bottles <u>2X1LA</u>
Temperature Meter <u>HYDROLAB</u>	Serial Number <u>#R10797</u>	<u>1X250mLP</u>
Turbidity Meter <u>HYDROLAB</u>	Serial Number <u>#R10797</u>	
Spec. Elec. Cond. Meter <u>HYDROLAB</u>	Serial Number <u>#R10797</u>	
ORP Meter <u>HYDROLAB</u>	Serial Number <u>#R10797</u>	Field Notebook <u>Pg 76</u>
D.O. Meter <u>HYDROLAB</u>	Serial Number <u>#R10797</u>	Sample Method <u>Low Flow</u>
Interface Probe <u>SOLINST</u>	Serial Number <u>#25582</u>	
PID/OVA <u>MINI-RAE</u>	Serial Number <u>#00320</u>	
Pump <u>GEO-PUMP</u>	Serial Number <u>BA0041</u>	
Filter Apparatus <u>GEO-45 MICRON</u>		Discharge Water Containerized <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No



TETRA TECH FW, INC.

LOW-FLOW GROUNDWATER  
SAMPLING DATA SHEETPage 1 of 1Date 3/7/05

Well Name <u>W1-24</u>	Screen Interval <u>6-18</u>	Station Elevation <u>GND</u> TOC	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>CTO 86-Site 1, R8/05</u>	Static Water Level (from TOC) / Time <u>6.37/0954</u> <u>6.38/0955</u> <u>6.39/0956</u>		
Project No. <u>1990.086E</u>	Average Water Level (from TOC) <u>6.38</u>		
Well Location <u>Moffett-Site 1</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>0</u>	
Sample Date <u>3/5/05</u>	Reference Elevation	PID Reading (TOC) <u>0</u>	
Sampling Personnel <u>D. HARRISON</u>	Static Elevation	Notes	
<u>M. RAMOS</u>	Well Depth MEAS <u>20.28</u> RPTD	Feet of Water	
Sample ID <u>86-S1-106</u>	Depth of Bottom of Tubing <u>11</u>		
Duplicate ID <u>N/A</u>	Depth to Water (w/ Tubing in Well) <u>6.38</u>		

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading Location	Value	Depth to Water <sup>2</sup> (ft)	Comments
1500	.4	0.30	7.0	131	26.9	2460	4.5	.1			6.40	
1503	.4	0.76	6.8	119	26.7	5270	3.2	.3			6.42	
1504	.4	2.22	6.8	110	25.1	7553	2.9	.5			6.43	
1508	.4	1.30	6.8	116	25.0	8760	5.6	.7			6.45	
1512	.4	0.32	6.8	117	24.7	10238	4.6	.9			6.46	
1515	.4	0.30	6.8	120	24.2	10377	5.0	1.1			6.49	
1518	.4	0.28	6.8	121	24.1	10480	2.5	1.3			6.50	
1520	Collet Sample											

## Notes:

1. Purge rate = 0.2 - 0.5 L/minute
2. Drawdown shall be <0.33 foot

## SAMPLE PARAMETERS

SVOC's	D.MERC.											
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## SAMPLE RATE

.4 L/min	.4 L/min											
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## Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: GoodRemarks: Green turbidity / Slight H<sub>2</sub>S odor

## FIELD EQUIPMENT

pH Meter <u>HYDROLAB</u>	Serial Number <u>#R10797</u>	Number of Bottles <u>2x1LA</u>
Temperature Meter <u>HYDROLAB</u>	Serial Number <u>#R10797</u>	<u>2x250mLP</u>
Turbidity Meter <u>HYDROLAB</u>	Serial Number <u>#R10797</u>	
Spec. Elec. Cond. Meter <u>HYDROLAB</u>	Serial Number <u>#R10797</u>	
ORP Meter <u>HYDROLAB</u>	Serial Number <u>#R10797</u>	Field Notebook
D.O. Meter <u>HYDROLAB</u>	Serial Number <u>#R10797</u>	
Interface Probe <u>SOLINST</u>	Serial Number <u>#25582</u>	Sample Method <u>Low Flow</u>
PID/OVA <u>MINI-RAE</u>	Serial Number <u>#00320</u>	
Pump <u>GEO-PUMP</u>	Serial Number <u>BA0041</u>	
Filter Apparatus <u>GEO-45 MICRON</u>		Discharge Water Containerized <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No



**APPENDIX B**

**ANALYTICAL SUMMARY TABLES**  
**AND STATISTICAL EVALUATION TABLES**

## **LIST OF APPENDIX B TABLES**

### **Semiannual Sampling**

Table B-1      April 2005 Validated Analytical Results, Site 1 Landfill

Table B-2      October 2005 Validated Analytical Results, Site 1 Landfill

### **Supplemental Sampling**

Table B-3      January 2005 Analytical Results for Dissolved Mercury and Semivolatile Organic Compounds, Site 1

Table B-4      March 2005 Analytical Results for Dissolved Mercury and Semivolatile Organic Compounds, Site 1

### **Statistical Evaluation**

Table B-5      Statistical Evaluation Summary – Dissolved Metals

Table B-6      Statistical Evaluation Summary – Pesticides

## **SEMIANNUAL SAMPLING**

TABLE B-1

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
APRIL 2005 VALIDATED ANALYTICAL RESULTS, SITE 1 LANDFILL  
FORMER NAS MOFFETT FIELD**

MP	86-S1-108 W1-1R 4/11/05	86-S1-109 W1-15 4/11/05	86-S1-110 W1-19 4/11/05	86-S1-112 W1-14 4/11/05	86-S1-113 W1-12R 4/12/05	86-S1-114 W1-12R (DUP) 4/12/05	86-S1-115 W1-22 <sup>a</sup> 4/12/05	86-S1-116 W1-5 4/12/05	86-S1-117 W1-8 4/12/05	86-S1-118 W1-8 (DUP) 4/12/05	86-S1-119 W1-24 4/13/05	86-S1-120 W1-16 4/13/05
<b>Dissolved Metals ( µg/L) EPA Method 200.8</b>												
Arsenic	0.834 J	4.61 J	2.2 J	4.54 J	1.55 J	1.63 J	2.76 J	1.05 J	2.09 J	1.77 J	6.35 J	5.43 J
Barium	73.3	145 J	83.8	184	74.3	73.4 J	208	507	130	130 J	218	244
Cobalt	13.5	1.91 J	9.93	6.01	4.67	6.37	4.33	1.28	2.74	2.4 J	6.29	4.99
Copper	0.602 J	0.205 J	0.814 J	0.225 J	0.528 J	0.573 J	0.831 J	0.142 J	0.329 J	0.434 J	0.243 J	0.214 J
<b>VOCs ( µg/L) EPA Method 8260B</b>												
m,p-Xylene	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Trichloroethene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Vinyl chloride	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
<b>Pesticides ( µg/L) EPA Method 8081A</b>												
beta-BHC	0.047 U	0.048 U	0.047 U	0.047 U	0.053 U	0.047 U	0.047 U	0.047 U	0.048 U	0.047 U	0.048 U	0.048 U
Heptachlor	0.047 U	0.048 U	0.047 U	0.047 U	0.053 U	0.047 U	0.047 U	1.2	0.048 U	0.047 U	0.048 U	0.048 U
<b>SVOCs ( µg/L) EPA Method 8270C</b>												
2,4,6-Trichlorophenol	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.7 U	9.4 U	9.5 U	9.5 U	9.4 U	9.4 U	9.6 U
2-Methylphenol	9.4 U	9.4 U	9.5 U	9.4 U	9.4 U	9.7 U	9.4 U	9.5 U	9.5 U	9.4 U	9.4 U	9.6 U

**Notes:**

Shading indicates concentration above the calculated concentration limit.

<sup>a</sup> – Well W1-22 is a collection trench well and not representative of groundwater at Site 1**Abbreviations and Acronyms:**

µg/L – micrograms per liter

BHC – benzene hexachloride

DUP – duplicate sample

EPA – United States Environmental Protection Agency

J – estimated value

MP – monitoring parameter

NAS – Naval Air Station

SVOC – semivolatile organic compound

U – analyte not detected above project reporting limit

VOC – volatile organic compound

TABLE B-2

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
OCTOBER 2005 VALIDATED ANALYTICAL RESULTS, SITE 1 LANDFILL  
FORMER NAS MOFFETT FIELD**

MP	86-S1-124 W1-1R 10/4/05	86-S1-125 W1-15 10/4/05	86-S1-126 W1-19 10/6/05	86-S1-128 W1-14 10/6/05	86-S1-129 W1-12R 10/6/05	86-S1-130 W1-22 <sup>a</sup> 10/6/05	86-S1-131 W1-5 10/6/05	86-S1-132 W1-5 (DUP) 10/6/05	86-S1-133 W1-8 10/6/05	86-S1-134 W1-8 (DUP) 10/6/05	86-S1-135 W1-24 10/6/05	86-S1-136 W1-16 10/6/05
<b>Dissolved Metals ( µg/L)      EPA Method 200.8</b>												
Arsenic	1.61	4.47	2.97	5.28	2.53	1.93	0.95	1.95 J	3.86	4.33 J	7.25	7.72
Barium	107	176	99.9	159	72	1260	576	556 J	150	150 J	398	458
Cobalt	7.69 J	3.32 J	9.69 J	8.34 J	5.25 J	0.36 J	1.73 J	2.99 J	2.27 J	2.28 J	2.87 J	7.28 J
Copper	2.64 J	0.1 J	0.494 J	0.075 J	0.205 J	0.135 J	0.031 J	0.06 J	0.099 J	0.093 J	0.14 J	0.125 J
<b>VOCs ( µg/L)      EPA Method 8260B</b>												
m,p-Xylene	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Trichloroethene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Vinyl chloride	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
<b>Pesticides ( µg/L)      EPA Method 8081A</b>												
beta-BHC	0.048 U	0.048 U	0.047 U	0.047 U	0.049 U	0.25	0.05 U	0.048 U	0.048 U	0.047 U	0.05 U	0.049 U
Heptachlor	0.048 U	0.048 U	0.047 U	0.047 U	0.02 J	0.049 U	0.05 U	0.048 U	0.048 U	0.047 U	0.05 U	0.049 U
<b>SVOCs ( µg/L)      EPA Method 8270C</b>												
2,4,6-Trichlorophenol	9.4 U	9.4 U	10 U	9.5 U	9.4 U	10 U	9.4 U	10 U	9.4 U	9.7 U	9.4 U	9.5 U
2-Methylphenol	9.4 U	9.4 U	10 U	9.5 U	9.4 U	10 U	9.4 U	10 U	9.4 U	9.7 U	9.4 U	9.5 U

**Notes:**

Shading indicates concentration above the calculated concentration limit.

<sup>a</sup> – Well W1-22 is a collection trench well and not representative of groundwater at Site 1**Abbreviations and Acronyms:**

µg/L – micrograms per liter  
 BHC – benzene hexachloride  
 DUP – duplicate sample  
 EPA – United States Environmental Protection Agency  
 J – estimated value  
 MP – monitoring parameter  
 NAS – Naval Air Station  
 SVOC – semivolatile organic compound  
 U – analyte not detected above project reporting limit  
 VOC – volatile organic compound

## **SUPPLEMENTAL SAMPLING**

TABLE B-3

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT**  
**JANUARY 2005 ANALYTICAL RESULTS FOR DISSOLVED MERCURY AND SEMIVOLATILE ORGANIC COMPOUNDS, SITE 1**  
**FORMER NAS MOFFETT FIELD**

COC	86-S1-084 W1-1R 1/31/05	86-S1-085 W1-15 2/1/05	86-S1-086 W1-19 2/1/05	86-S1-088 W1-14 2/1/05	86-S1-089 W1-12R 2/1/05	86-S1-090 W W1-12R (DUP) 2/1/05	86-S1-091 W1-22 <sup>a</sup> 2/2/05	86-S1-092 W1-5 2/2/05	86-S1-093 W1-8 2/2/05	86-S1-094 W1-24 2/2/05	86-S1-095 W1-16 2/2/05
<i>Dissolved Metals ( µg/L) EPA Method 7470A</i>											
Mercury	8 U	8 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
<i>SVOCs ( µg/L) EPA Method 8270C</i>											
1,1'-Biphenyl	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2,2'-Oxybis(1-chloropropane)	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2,4,5-Trichlorophenol	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2,4,6-Trichlorophenol	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2,4-Dichlorophenol	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2,4-Dimethylphenol	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2,4-Dinitrophenol	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
2,4-Dinitrotoluene	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
2,6-Dinitrotoluene	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
2-Chloronaphthalene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2-Chlorophenol	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2-Methylnaphthalene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2-Methylphenol	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2-Nitroaniline	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
2-Nitrophenol	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
3,3'-Dichlorobenzidine	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
3/4-Methylphenol	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
3-Nitroaniline	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
4,6-Dinitro-2-methylphenol	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
4-Bromophenyl-phenylether	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
4-Chloro-3-methylphenol	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
4-Chloroaniline	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
4-Chlorophenyl-phenylether	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
4-Nitroaniline	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
4-Nitrophenol	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
Acenaphthene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Acenaphthylene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Acetophenone	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Anthracene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Atrazine	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U

TABLE B-3

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT**  
**JANUARY 2005 ANALYTICAL RESULTS FOR DISSOLVED MERCURY AND SEMIVOLATILE ORGANIC COMPOUNDS, SITE 1**  
**FORMER NAS MOFFETT FIELD**

COC	86-S1-084 W1-1R 1/31/05	86-S1-085 W1-15 2/1/05	86-S1-086 W1-19 2/1/05	86-S1-088 W1-14 2/1/05	86-S1-089 W1-12R 2/1/05	86-S1-090 W W1-12R (DUP) 2/1/05	86-S1-091 W1-22 <sup>a</sup> 2/2/05	86-S1-092 W1-5 2/2/05	86-S1-093 W1-8 2/2/05	86-S1-094 W1-24 2/2/05	86-S1-095 W1-16 2/2/05
Benzaldehyde	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Benzo(a)anthracene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Benzo(a)pyrene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Benzo(b)fluoranthene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Benzo(g,h,i)perylene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Benzo(k)fluoranthene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
bis(2-Chloroethoxy)methane	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
bis(2-Chloroethyl)ether	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
bis(2-Ethylhexyl)phthalate	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
Butylbenzylphthalate	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Caprolactam	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Carbazole	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Chrysene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Dibenzo(a,h)anthracene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Dibenzofuran	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Diethylphthalate	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
Dimethylphthalate	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
di-n-Butylphthalate	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
di-n-Octylphthalate	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Fluoranthene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Fluorene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Hexachlorobenzene	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
Hexachlorocyclopentadiene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Hexachloroethane	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Indeno(1,2,3-cd)pyrene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Isophorone	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Nitrobenzene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
n-Nitroso-di-n-propylamine	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
n-Nitrosodiphenylamine	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Pentachlorophenol	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
Phenanthrene	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
Phenol	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Pyrene	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U



**TABLE B-3**

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
JANUARY 2005 ANALYTICAL RESULTS FOR DISSOLVED MERCURY AND SEMIVOLATILE ORGANIC COMPOUNDS, SITE 1  
FORMER NAS MOFFETT FIELD**

**Notes:**

<sup>a</sup> – Well W1-22 is a collection trench well not representative of groundwater at Site 1

**Abbreviations and Acronyms:**

µg/L – micrograms per liter

COC – constituent of concern

DUP – duplicate sample

EPA – United States Environmental Protection Agency

NAS – Naval Air Station

SVOC – semivolatile organic compound

U – analyte not detected above project reporting limit

TABLE B-4

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT**  
**MARCH 2005 ANALYTICAL RESULTS FOR DISSOLVED MERCURY AND SEMIVOLATILE ORGANIC COMPOUNDS, SITE 1**  
**FORMER NAS MOFFETT FIELD**

COC	86-S1-096 W1-1R 3/7/05	86-S1-097 W1-15 3/7/05	86-S1-098 W1-19 3/7/05	86-S1-100 W1-14 3/7/05	86-S1-101 W1-12R 3/7/05	86-S1-102 W1-22 <sup>a</sup> 3/8/05	86-S1-103 W1-5 3/8/05	86-S1-104 W1-5 (DUP) 3/8/05	86-S1-105 W1-8 3/8/05	86-S1-106 W1-24 3/8/05	86-S1-107 W1-16 3/8/05
<i>Dissolved Metals ( µg/L)</i>	<i>EPA Method 7470A</i>										
Mercury	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U
<i>SVOCs ( µg/L)</i>	<i>EPA Method 8270C</i>										
1,1'-Biphenyl	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2,2'-Oxybis(1-chloropropane)	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2,4,5-Trichlorophenol	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2,4,6-Trichlorophenol	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2,4-Dichlorophenol	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2,4-Dimethylphenol	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2,4-Dinitrophenol	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
2,4-Dinitrotoluene	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
2,6-Dinitrotoluene	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
2-Chloronaphthalene	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2-Chlorophenol	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2-Methylnaphthalene	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2-Methylphenol	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2-Nitroaniline	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
2-Nitrophenol	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
3,3'-Dichlorobenzidine	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.7 UJ	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
3/4-Methylphenol	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
3-Nitroaniline	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
4,6-Dinitro-2-methylphenol	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
4-Bromophenyl-phenylether	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
4-Chloro-3-methylphenol	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
4-Chloroaniline	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
4-Chlorophenyl-phenylether	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
4-Nitroaniline	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
4-Nitrophenol	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
Acenaphthene	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Acenaphthylene	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Acetophenone	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Anthracene	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Atrazine	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U

TABLE B-4

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT**  
**MARCH 2005 ANALYTICAL RESULTS FOR DISSOLVED MERCURY AND SEMIVOLATILE ORGANIC COMPOUNDS, SITE 1**  
**FORMER NAS MOFFETT FIELD**

COC	86-S1-096 W1-1R 3/7/05	86-S1-097 W1-15 3/7/05	86-S1-098 W1-19 3/7/05	86-S1-100 W1-14 3/7/05	86-S1-101 W1-12R 3/7/05	86-S1-102 W1-22 <sup>a</sup> 3/8/05	86-S1-103 W1-5 3/8/05	86-S1-104 W1-5 (DUP) 3/8/05	86-S1-105 W1-8 3/8/05	86-S1-106 W1-24 3/8/05	86-S1-107 W1-16 3/8/05
Benzaldehyde	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Benzo(a)anthracene	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.7 UJ	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Benzo(a)pyrene	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Benzo(b)fluoranthene	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Benzo(g,h,i)perylene	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Benzo(k)fluoranthene	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
bis(2-Chloroethoxy)methane	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
bis(2-Chloroethyl)ether	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
bis(2-Ethylhexyl)phthalate	19 U	19 U	19 U	19 U	19 U	19 UJ	19 U	19 U	19 U	19 U	19 U
Butylbenzylphthalate	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.7 UJ	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Caprolactam	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Carbazole	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Chrysene	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.7 UJ	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Dibenzo(a,h)anthracene	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Dibenzofuran	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Diethylphthalate	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
Dimethylphthalate	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
di-n-Butylphthalate	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
di-n-Octylphthalate	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Fluoranthene	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Fluorene	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Hexachlorobenzene	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
Hexachlorocyclopentadiene	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Hexachloroethane	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Indeno(1,2,3-cd)pyrene	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Isophorone	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Nitrobenzene	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
n-Nitroso-di-n-propylamine	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
n-Nitrosodiphenylamine	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Pentachlorophenol	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
Phenanthrene	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U
Phenol	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.7 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Pyrene	9.4 U	9.4 U	9.4 U	9.4 U	9.5 U	9.7 UJ	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U

**TABLE B-4**

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
MARCH 2005 ANALYTICAL RESULTS FOR DISSOLVED MERCURY AND SEMIVOLATILE ORGANIC COMPOUNDS, SITE 1  
FORMER NAS MOFFETT FIELD**

**Notes:**

<sup>a</sup> – Well W1-22 is a collection trench well not representative of groundwater at Site 1

**Abbreviations and Acronyms:**

µg/L – micrograms per liter

COC – constituent of concern

DUP – duplicate sample

EPA – United States Environmental Protection Agency

NAS – Naval Air Station

SVOC – semivolatile organic compound

U – analyte not detected above project reporting limit

UJ – analyte not detected above the estimated reporting limit

## **STATISTICAL EVALUATION**

TABLE B-5

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
STATISTICAL EVALUATION SUMMARY - DISSOLVED METALS  
APRIL 2005 MONITORING SUMMARY  
FORMER NAS MOFFETT FIELD**

Date	Sample Type	Well	Gradient	Analyte	Conc. (µg/L)	CCL (µg/L)	Less Than Historical Background	Maximum Historical Background	Track for 2 Out of 3 Exceed.	Comment
04/12/05	REG	W1-5	Upgrad.	Barium	507	40	N/A	N/A	No	Location is a background well
04/12/05	REG	W1-8	Upgrad.	Barium	130	40	N/A	N/A	No	Location is a background well
04/12/05	FD	W1-8	Upgrad.	Barium	130 J	40	N/A	N/A	No	Location is a background well
04/12/05	REG	W1-12R	Upgrad.	Barium	74.3	40	N/A	N/A	No	Location is a background well
04/12/05	FD	W1-12R	Upgrad.	Barium	73.4 J	40	N/A	N/A	No	Location is a background well
04/11/05	REG	W1-14	Downgrd.	Barium	184	40	Yes	W1-5 693 µg/L 7/16/03	No	Less than historical background
04/11/05	REG	W1-15	Downgrd.	Barium	145 J	40	Yes	W1-5 693 µg/L 7/16/03	No	Less than historical background
04/13/05	REG	W1-16	Downgrd.	Barium	244	40	Yes	W1-5 693 µg/L 7/16/03	No	Less than historical background
04/11/05	REG	W1-19	Downgrd.	Barium	83.8	40	Yes	W1-5 693 µg/L 7/16/03	No	Less than historical background
04/11/05	REG	W1-1R	Downgrd.	Barium	73.3	40	Yes	W1-5 693 µg/L 7/16/03	No	Less than historical background
04/13/05	REG	W1-24	Downgrd.	Barium	218	40	Yes	W1-5 693 µg/L 7/16/03	No	Less than historical background

TABLE B-5

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
STATISTICAL EVALUATION SUMMARY - DISSOLVED METALS  
OCTOBER 2005 MONITORING SUMMARY  
FORMER NAS MOFFETT FIELD**

Date	Sample Type	Well	Gradient	Analyte	Conc. (µg/L)	CCL (µg/L)	Less Than Historical Background	Maximum Historical Background	Track for 2 Out of 3 Exceed.	Comment
10/06/05	REG	W1-5	Upgrad.	Barium	576	40	N/A	N/A	No	Location is a background well
10/06/05	FD	W1-5	Upgrad.	Barium	556 J	40	N/A	N/A	No	Location is a background well
10/06/05	REG	W1-8	Upgrad.	Barium	150	40	N/A	N/A	No	Location is a background well
10/06/05	FD	W1-8	Upgrad.	Barium	150 J	40	N/A	N/A	No	Location is a background well
10/06/05	REG	W1-12R	Upgrad.	Barium	72	40	N/A	N/A	No	Location is a background well
10/06/05	REG	W1-14	Downgrd.	Barium	159	40	Yes	W1-5 693 µg/L 7/16/03	No	Less than historical background
10/04/05	REG	W1-15	Downgrd.	Barium	176	40	Yes	W1-5 693 µg/L 7/16/03	No	Less than historical background
10/06/05	REG	W1-16	Downgrd.	Barium	458	40	Yes	W1-5 693 µg/L 7/16/03	No	Less than historical background
10/06/05	REG	W1-19	Downgrd.	Barium	99.9	40	Yes	W1-5 693 µg/L 7/16/03	No	Less than historical background
10/04/05	REG	W1-1R	Downgrd.	Barium	107	40	Yes	W1-5 693 µg/L 7/16/03	No	Less than historical background
10/06/05	REG	W1-24	Downgrd.	Barium	398	40	Yes	W1-5 693 µg/L 7/16/03	No	Less than historical background

**Abbreviations and Acronyms:**

µg/L - micrograms per liter  
CCL - calculated concentration limit  
Conc. - concentration  
Downgrd. - downgradient

Exceed. - exceedance  
FD - field duplicate  
J - estimated value  
N/A - not applicable

NAS - Naval Air Station  
Upgrad. - upgradient  
REG - regular sample

**TABLE B-6**

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
STATISTICAL EVALUATION SUMMARY - PESTICIDES  
APRIL 2005 MONITORING SUMMARY  
FORMER NAS MOFFETT FIELD**

Date	Sample Type	Well	Gradient	Analyte	Conc. (µg/L)	CCL (µg/L)	Less Than Historical Background	Maximum Historical Background	Track for 2 Out of 3 Exceed.	Comment
4/12/2005	REG	W1-5	Upgrad.	Heptachlor	1.2	0.36	N/A	N/A	No	Location is a background well



**TABLE B-6**

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
STATISTICAL EVALUATION SUMMARY - PESTICIDES  
OCTOBER 2005 MONITORING SUMMARY  
FORMER NAS MOFFETT FIELD**

Date	Sample Type	Well	Gradient	Analyte	Conc. (µg/L)	CCL (µg/L)	Less Than Historical Background	Maximum Historical Background	Track for 2 Out of 3 Exceed.	Comment
				No exceedances reported						

**Abbreviations and Acronyms:**

µg/L - micrograms per liter  
CCL - calculated concentration limit  
Conc. - concentration  
Upgrad. - upgradient  
Exceed. - exceedance  
N/A - not applicable  
NAS - Naval Air Station  
REG - regular sample

**APPENDIX C**  
**ANALYTICAL DATA VALIDATION PACKAGES**  
**(Provided on CD only)**



NUMBER 1315

# CHAIN-OF-CUSTODY RECORD

PROJECT NAME		PURCHASE ORDER NO		ANALYSES REQUIRED										LABORATORY NAME		Project Information Section Do not submit to Laboratory					
PROJECT LOCATION		PROJECT NO		DATE COLLECTED		TIME COLLECTED		NO OF CONTAINER		LEVEL		TYPE		T A T		LOCATION		DEPTH		QC	
SAMPLER NAME		AIRBILL NUMBER		PROJECT CONTACT PHONE NUMBER		PROJECT CONTACT		PROJECT CONTACT		PROJECT CONTACT		PROJECT CONTACT		PROJECT CONTACT		PROJECT CONTACT		PROJECT CONTACT		PROJECT CONTACT	
PROJECT CONTACT		PROJECT CONTACT		PROJECT CONTACT		PROJECT CONTACT		PROJECT CONTACT		PROJECT CONTACT		PROJECT CONTACT		PROJECT CONTACT		PROJECT CONTACT		PROJECT CONTACT		PROJECT CONTACT	
Sirel - R7/05		20848 TANK 28		1990-086E		1530		3		X		W		10		W1-1R		-		-	
Moffett Field, CA		1990-086E		1530		3		X		W		10		W1-15		-		-		-	
Toll Ogle		1990-086E		1530		3		X		W		10		W1-15		-		-		-	
1990-086E		1990-086E		1530		3		X		W		10		W1-15		-		-		-	
1990-086E		1990-086E		1530		3		X		W		10		W1-15		-		-		-	
1990-086E		1990-086E		1530		3		X		W		10		W1-15		-		-		-	
1990-086E		1990-086E		1530		3		X		W		10		W1-15		-		-		-	
1990-086E		1990-086E		1530		3		X		W		10		W1-15		-		-		-	
1990-086E		1990-086E		1530		3		X		W		10		W1-15		-		-		-	
1990-086E		1990-086E		1530		3		X		W		10		W1-15		-		-		-	
1990-086E		1990-086E		1530		3		X		W		10		W1-15		-		-		-	
1990-086E		1990-086E		1530		3		X		W		10		W1-15		-		-		-	
1990-086E		1990-086E		1530		3		X		W		10		W1-15		-		-		-	
1990-086E		1990-086E		1530		3		X		W		10		W1-15		-		-		-	
1990-086E		1990-086E		1530		3		X		W		10		W1-15		-		-		-	
1990-086E		1990-086E		1530		3		X		W		10		W1-15		-		-		-	
1990-086E		1990-086E		1530		3		X		W		10		W1-15		-		-		-	
1990-086E		1990-086E		1530		3		X		W		10		W1-15		-		-		-	
1990-086E		1990-086E		1530		3		X		W		10		W1-15		-		-		-	
1990-086E		1990-086E		1530		3		X		W		10		W1-15		-		-		-	
1990-086E		1990-086E		1530		3		X		W		10		W1-15		-		-		-	
1990-086E		1990-086E		1530		3		X		W		10		W1-15		-		-		-	
1990-086E		1990-086E		1530		3		X		W		10		W1-15		-		-		-	
1990-086E		1990-086E		1530		3		X		W		10		W1-15		-		-		-	
1990-086E		1990-086E		1530		3		X		W		10		W1-15		-		-		-	
1990-086E		1990-086E		1530		3		X		W		10		W1-15		-		-		-	
1990-086E		1990-086E		1530		3		X		W		10		W1-15		-		-		-	
1990-086E		1990-086E		1530		3		X		W		10		W1-15		-		-		-	
1990-086E		1990-086E		1530		3		X		W		10		W1-15		-		-		-	
1990-086E		1990-086E		1530		3		X													

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management

0016653-1N



LABORATORIES, INC.

1835 W. 205th Street

Torrance, CA 90501

Tel: (310) 618-8889

Fax: (310) 618-0818

Date: 03-03-2005

EMAX Batch No.: 058011

Attn: Lynn Jefferson

Tetra Tech FW, Inc.

1940 E Deere Ave, Suite 200

Santa Ana CA 92705

Subject: Laboratory Report

Project: MFA, Site 1, CTO 86

Enclosed is the Laboratory report for samples received on  
02/02/05. The data reported include :

Sample ID	Control #	Col Date	Matrix	Analysis
86-S1-084	B011-01	01/31/05	WATER	MERCURY DISSOLVED SEMIVOLATILE ORGANICS BY GCMS
86-S1-085	B011-02	02/01/05	WATER	MERCURY DISSOLVED SEMIVOLATILE ORGANICS BY GCMS
86-S1-085MS	B011-02M	02/01/05	WATER	MERCURY DISSOLVED SEMIVOLATILE ORGANICS BY GCMS
86-S1-085MSD	B011-02S	02/01/05	WATER	MERCURY DISSOLVED SEMIVOLATILE ORGANICS BY GCMS

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning  
these results.

Sincerely yours,

Kam Y. Pang, Ph.D.

Laboratory Director

13 235A

## CASE NARRATIVE

**CLIENT:** TETRA TECH FW, INC.

**PROJECT:** MFA, SITE 1, CTO 86

**SDG:** 05B011

### SW 3520C/8270C SEMI VOLATILE ORGANICS BY GC/MS

Two (2) water samples were received on 02/02/05 for Semi Volatile Organic analysis by Method 3520C/8270C in accordance with USEPA SW846, 3<sup>rd</sup> ed.

**1. Holding Time**

Analytical holding time was met.

**2. Tuning and Calibration**

Tuning and calibration were carried out at 12-hour interval. All QC requirements were met.

**3. Method Blank**

Method blank was free of contamination at the reporting limit.

**4. Surrogate Recovery**

Recoveries were within QC limit.

**5. Lab Control Sample/Lab Control Sample Duplicate**

Recoveries were within QC limit.

**6. Matrix Spike/Matrix Spike Duplicate**

Sample B011-02 was spiked. All recoveries were within QC limit except:

Sample	Compound	%Rec.	QC Limit
B0111-02S	2-Chlorophenol	38	41-125

But recovery in MS met QC criteria. RPD was 1% higher than QC limit.

**7. Sample Analysis**

Samples were analyzed according to the prescribed QC procedures. All criteria were met with the aforementioned exception.

SW 3520C/8270C  
SEMI VOLATILE ORGANICS BY GC/MS

```

=====
Client       : TETRA TECH FW, INC.      Date Collected: 01/31/05
Project      : MFA, SITE 1, CTO 86     Date Received: 02/02/05
Batch No.    : 05B011                  Date Extracted: 02/07/05 17:00
Sample ID    : 86-S1-084               Date Analyzed: 02/14/05 19:42
Lab Samp ID  : B011-01                 Dilution Factor: .94
Lab File ID  : RBH162                  Matrix       : WATER
Ext Btch ID  : SVB006W                 % Moisture    : NA
Calib. Ref.  : RBH022                  Instrument ID : T-041
=====

```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	19	9.4
2,4-DINITROTOLUENE	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	5.6
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	9.4	4.7
2-NITROANILINE	ND	19	5.6
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	9.4	4.7
4,6-DINITRO-2-METHYLPHENOL	ND	19	9.4
4-BROMOPHENYL-PHENYL ETHER	ND	19	6.6
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	9.4	4.7
4-NITROPHENOL	ND	19	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	9.4	4.7
BIS(2-ETHYLHEXYL)PHTHALATE	ND	19	9.4
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHTHALATE	ND	9.4	4.7
DI-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	9.4	4.7
DIETHYLPHTHALATE	ND	19	5.6
DIMETHYLPHTHALATE	ND	19	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	9.4	4.7
HEXACHLORO BENZENE	ND	19	5.6
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSODIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	9.4	4.7
PENTACHLOROPHENOL	ND	19	9.4
PHENANTHRENE	ND	19	5.6
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	4.7
ACETOPHENONE	ND	9.4	2.3
ATRAZINE	ND	19	9.4
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	69	25-134
2-FLUOROBIPHENYL	48	43-125
2-FLUOROPHENOL	40	25-125
NITROBENZENE-D5	43	32-125
PHENOL-D5	47	25-125
TERPHENYL-D14	90	42-126

RL: Reporting Limit  
(1): Cannot be separated from 3-Methylphenol  
(2): Cannot be separated from Diphenylamine

SW 3520C/8270C  
SEMI VOLATILE ORGANICS BY GC/MS

```

=====
Client      : TETRA TECH FW, INC.      Date Collected: 02/01/05
Project     : MFA, SITE 1, CTO 86      Date Received: 02/02/05
Batch No.   : 05B011                  Date Extracted: 02/07/05 17:00
Sample ID   : 86-S1-085                Date Analyzed: 02/14/05 20:10
Lab Samp ID : B011-02                  Dilution Factor: .94
Lab File ID : RBH163                   Matrix          : WATER
Ext Btch ID : SVB006W                  % Moisture      : NA
Calib. Ref. : RBH022                   Instrument ID   : T-041
=====

```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	19	9.4
2,4-DINITROTOLUENE	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	5.6
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	9.4	4.7
2-NITROANILINE	ND	19	5.6
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	9.4	4.7
4,6-DINITRO-2-METHYLPHENOL	ND	19	9.4
4-BROMOPHENYL-PHENYL ETHER	ND	19	6.6
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	9.4	4.7
4-NITROPHENOL	ND	19	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	9.4	4.7
BIS(2-ETHYLHEXYL)PHTHALATE	ND	19	9.4
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHTHALATE	ND	9.4	4.7
DI-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	9.4	4.7
DIETHYLPHTHALATE	ND	19	5.6
DIMETHYLPHTHALATE	ND	19	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	9.4	4.7
HEXACHLOROBENZENE	ND	19	5.6
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSODIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	9.4	4.7
PENTACHLOROPHENOL	ND	19	9.4
PHENANTHRENE	ND	19	5.6
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	4.7
ACETOPHENONE	ND	9.4	2.3
ATRAZINE	ND	19	9.4
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	70	25-134
2-FLUOROBIPHENYL	63	43-125
2-FLUOROPHENOL	54	25-125
NITROBENZENE-D5	60	32-125
PHENOL-D5	63	25-125
TERPHENYL-D14	83	42-126

RL: Reporting Limit  
(1): Cannot be separated from 3-Methylphenol  
(2): Cannot be separated from Diphenylamine

## CASE NARRATIVE

CLIENT: TETRA TECH FW, INC.

PROJECT: MFA, SITE 1, CTO 86

SDG: 05B011

### METHOD 7470A DISSOLVED MERCURY BY COLD VAPOR

Two (2) water samples were received on 02/02/05 for Mercury analysis by Method 7470A in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3<sup>rd</sup> edition.

**1. Holding Time**

Analysis met holding time criteria.

**2. Method Blank**

Method blank was free of contamination at the reporting limit.

**3. Lab Control Sample/Lab Control Sample Duplicate**

Lab control results were within QC limit.

**4. Serial Dilution / Post-Analytical Spike**

Sample B011-02 was analyzed for serial dilution and post-analytical spike. All QC requirements were met.

**5. Matrix Spike/Matrix Spike Duplicate**

Sample B011-02 was spiked. Recoveries were out of QC limit.

**6. Sample Analysis**

Samples were analyzed according to the prescribed QC procedures. All criteria were met with the aforementioned exception.

Samples were reported from DF 40 due to matrix interference.



METHOD 7470A  
DISSOLVED MERCURY BY COLD VAPOR

Client : TETRA TECH FW, INC.  
Project : MFA, SITE 1, CTO 86  
Batch No. : 05B011

Matrix : WATER  
Instrument ID : T1047

SAMPLE ID	EMAX SAMPLE ID	RESULTS (ug/L)	DLF	MOIST	RL (ug/L)	MDL (ug/L)	Analysis DATE/TIME	Extraction DATE/TIME	LFID	CAL REF	PREP BATCH	Collection DATE/TIME	Received DATE/TIME
MBLK1W	HGB020WB	ND	1	NA	.2	.1	02/23/0516:18	02/23/0513:00	M478020010	M478020008	HGB020W	NA	02/23/05
LCS1W	HGB020WL	4.87	1	NA	.2	.1	02/23/0516:20	02/23/0513:00	M478020011	M478020008	HGB020W	NA	02/23/05
LCD1W	HGB020WC	4.94	1	NA	.2	.1	02/23/0516:22	02/23/0513:00	M478020012	M478020008	HGB020W	NA	02/23/05
86-S1-085AS	B011-02A	76.4	40	NA	8	4	02/23/0518:03	02/23/0513:00	M478020047	M478020044	HGB020W	02/01/05	02/02/05
86-S1-085	B011-02	ND	40	NA	8	4	02/23/0518:05	02/23/0513:00	M478020048	M478020044	HGB020W	02/01/05	02/02/05
86-S1-085DL	B011-02T	ND	200	NA	40	20	02/23/0518:07	02/23/0513:00	M478020049	M478020044	HGB020W	02/01/05	02/02/05
86-S1-085MS	B011-02M	6.52J	40	NA	8	4	02/23/0518:09	02/23/0513:00	M478020050	M478020044	HGB020W	02/01/05	02/02/05
86-S1-085MSD	B011-02S	7.92J	40	NA	8	4	02/23/0518:11	02/23/0513:00	M478020051	M478020044	HGB020W	02/01/05	02/02/05
86-S1-084	B011-01	ND	40	NA	8	4	02/23/0518:14	02/23/0513:00	M478020052	M478020044	HGB020W	01/31/05	02/02/05

RL: Reporting Limit

7003

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LDC Report# 13235A2

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Airfield, Site 1, CTO 86  
**Collection Date:** January 31 through February 1, 2005  
**LDC Report Date:** March 14, 2005  
**Matrix:** Water  
**Parameters:** Semivolatiles  
**Validation Level:** EPA Level III & IV  
**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 05B011

**Sample Identification**

86-S1-084\*\*  
86-S1-085  
86-S1-085MS  
86-S1-085MSD

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 4 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270C for Semivolatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## **III. Initial Calibration**

Initial calibration was performed using required standard concentrations.

The mean percent relative standard deviation (%RSD) for all compounds was less than or equal to 15.0% and less than or equal to 30.0% for selected individual compounds.

A curve fit, based on the initial calibration, was established for quantitation for selected compounds. The coefficient of determination ( $r^2$ ) was greater than or equal to 0.990 .

Average relative response factors (RRF) for all system performance check compounds (SPCCs) were within method criteria.

## **IV. Continuing Calibration**

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 20.0% for all compounds.

Initial calibration verification (ICV) percent differences (%D) were less than or equal to 20.0% for all compounds.

All of the continuing calibration RRF values for all system performance check compounds (SPCCs) were within method criteria.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No semivolatile contaminants were found in the method blanks.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Compound	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
86-S1-085MS/MSD (86-S1-085)	2-Chlorophenol	-	38 (41-125)	38 ( $\leq 30$ )	J (all detects) UJ (all non-detects)	A

## VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## IX. Regional Quality Assurance and Quality Control

Not applicable.

## X. Internal Standards

All internal standard areas and retention times were within QC limits.

## XI. Target Compound Identifications

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

## XIV. System Performance

The system performance was within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

#### **XV. Overall Assessment**

Data flags have been summarized at the end of the report.

#### **XVI. Field Duplicates**

No field duplicates were identified in this SDG.

#### **XVII. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Airfield, Site 1, CTO 86**  
**Semivolatiles - Data Qualification Summary - SDG 05B011**

SDG	Sample	Compound	Flag	A or P	Reason
05B011	86-S1-085	2-Chlorophenol	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicates (%R)(RPD)

**Moffett Airfield, Site 1, CTO 86**  
**Semivolatiles - Laboratory Blank Data Qualification Summary - SDG 05B011**

No Sample Data Qualified in this SDG

COPY

LDC Report# 13235A4

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Airfield, Site 1, CTO 86  
**Collection Date:** January 31 through February 1, 2005  
**LDC Report Date:** March 10, 2005  
**Matrix:** Water  
**Parameters:** Dissolved Mercury  
**Validation Level:** EPA Level III & IV  
**Laboratory:** EMAX Laboratories, Inc.  
**Sample Delivery Group (SDG):** 05B011

**Sample Identification**

86-S1-084\*\*  
86-S1-085  
86-S1-085MS  
86-S1-085MSD

\*\*Indicates sample underwent EPA Level IV review

✓  
10/13/05



## Introduction

This data review covers 4 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 7470A for Dissolved Mercury.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the method stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

## III. Blanks

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. No contaminant concentrations were found in the initial, continuing and preparation blanks.

## IV. ICP Interference Check Sample (ICS) Analysis

ICP interference check sample analysis is not required by the method.

## V. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
86-S1-085MS/MSD (All samples in SDG 05B011)	Dissolved mercury	130 (75-125)	158 (70-125)	-	J (all detects)	A

## VI. Duplicate Sample Analysis

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

## **VII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Internal Standards**

ICP-MS was not utilized in this SDG.

## **IX. Furnace Atomic Absorption QC**

Graphite furnace atomic absorption was not utilized in this SDG.

## **X. ICP Serial Dilution**

ICP serial dilution was not required by the method.

## **XI. Sample Result Verification**

All sample result verifications met validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XII. Overall Assessment of Data**

Data flags have been summarized at the end of this report.

## **XIII. Field Duplicates**

No field duplicates were identified in this SDG.

## **XIV. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Airfield, Site 1, CTO 86**

**Dissolved Mercury - Data Qualification Summary - SDG 05B011**

SDG	Sample	Analyte	Flag	A or P	Reason
05B011	86-S1-084** 86-S1-085	Dissolved mercury	J (all detects)	A	Matrix spike/Matrix spike duplicates (%R)

**Moffett Airfield, Site 1, CTO 86**

**Dissolved Mercury - Laboratory Blank Data Qualification Summary - SDG 05B011**

No Sample Data Qualified in this SDG



NUMBER 1031

## CHAIN-OF-CUSTODY RECORD

[illegible]

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management

0016579-12

13235 C EMAX  
LABORATORIES, INC.



LABORATORIES, INC.

1835 W. 205th Street  
Torrance, CA 90501  
Tel: (310) 618-8889  
Fax: (310) 618-0818

Date: 02-22-2005  
EMAX Batch No.: 058044

Attn: Lynn Jefferson

Tetra Tech FW, Inc.  
1940 E Deere Ave, Suite 200  
Santa Ana CA 92705

Subject: Laboratory Report  
Project: MFA, Site 1, CTO 86

Enclosed is the Laboratory report for samples received on  
02/08/05. The data reported include :

Sample ID	Control #	Col Date	Matrix	Analysis
86-S1-086	B044-01	02/01/05	WATER	MERCURY DISSOLVED SEMIVOLATILE ORGANICS BY GCMS
86-S1-088	B044-02	02/01/05	WATER	MERCURY DISSOLVED SEMIVOLATILE ORGANICS BY GCMS
86-S1-089	B044-03	02/01/05	WATER	MERCURY DISSOLVED SEMIVOLATILE ORGANICS BY GCMS
86-S1-090	B044-04	02/01/05	WATER	MERCURY DISSOLVED SEMIVOLATILE ORGANICS BY GCMS

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning  
these results.

Sincerely yours, *Kam Pang*

*Kam Pang*

Kam Y. Pang, Ph.D.  
Laboratory Director

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# CASE NARRATIVE

CLIENT: TETRA TECH FW, INC.

PROJECT: MFA, SITE 1, CTO 86

SDG: 05B044

## SW 3520C/8270C SEMI VOLATILE ORGANICS BY GC/MS

Four (4) water samples were received on 02/08/05 for Semi Volatile Organic analysis by Method 3520C/8270C in accordance with USEPA SW846, 3<sup>rd</sup> ed.

### 1. Holding Time

Analytical holding time was met.

### 2. Tuning and Calibration

Tuning and calibration were carried out at 12-hour interval. All QC requirements were met.

### 3. Method Blank

Method blank was free of contamination at the reporting limit.

### 4. Surrogate Recovery

Recoveries were within QC limit.

### 5. Lab Control Sample/Lab Control Sample Duplicate

Recoveries were within QC limit.

### 6. Matrix Spike/Matrix Spike Duplicate

No MS/MSD sample was designated in this SDG.

### 7. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

SW 3520C/8270C  
 SEMI VOLATILE ORGANICS BY GC/MS

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=====
Client      : TETRA TECH FW, INC.
Project     : MFA, SITE 1, CTO 86
Batch No.   : 05B044
Sample ID   : 86-S1-086
Lab Samp ID : B044-01
Lab File ID : RBH174
Ext Btch ID : SVB006W
Calib. Ref.: RBH022
Date Collected: 02/01/05
Date Received: 02/08/05
Date Extracted: 02/08/05 17:00
Date Analyzed: 02/15/05 01:14
Dilution Factor: .94
Matrix      : WATER
% Moisture  : NA
Instrument ID : T-041
=====
  
```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	9.4	4.7
2,4-DINITROTOLUENE	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	9.4
2-CHLORONAPHTHALENE	ND	19	5.6
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	9.4	4.7
2-NITROANILINE	ND	9.4	4.7
2-NITROPHENOL	ND	19	5.6
3,3'-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	9.4	4.7
4,6-DINITRO-2-METHYLPHENOL	ND	19	9.4
4-BROMOPHENYL-PHENYL ETHER	ND	19	6.6
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLORANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	9.4	4.7
4-NITROPHENOL	ND	19	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	9.4	4.7
BIS(2-ETHYLHEXYL)PHTHALATE	ND	19	4.7
BUTYLBENZYLPHthalate	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHthalate	ND	9.4	4.7
DI-N-OCTYLPHthalate	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	9.4	4.7
DIETHYLPHthalate	ND	19	4.7
DIMETHYLPHthalate	ND	19	5.6
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	9.4	4.7
HEXACHLOROBENZENE	ND	9.4	4.7
HEXACHLOROCYCLOPENTADIENE	ND	19	5.6
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSODIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	9.4	4.7
PENTACHLOROPHENOL	ND	9.4	4.7
PHENANTHRENE	ND	19	9.4
PHENOL	ND	19	5.6
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	4.7
ACETOPHENONE	ND	9.4	4.7
ATRAZINE	ND	9.4	2.3
BENZALDEHYDE	ND	19	9.4
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
2,4,6-TRIBROMOPHENOL	84	25-134	
2-FLUOROBIPHENYL	76	43-125	
2-FLUOROPHENOL	59	25-125	
NITROBENZENE-D5	70	32-125	
PHENOL-D5	67	25-125	
TERPHENYL-D14	105	42-126	

RL: Reporting Limit  
 (1): Cannot be separated from 3-Methylphenol  
 (2): Cannot be separated from Diphenylamine



SW 3520C/8270C  
SEMI VOLATILE ORGANICS BY GC/MS

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=====
Client      : TETRA TECH FW, INC.      Date Collected: 02/01/05
Project     : MFA, SITE 1, CTO 86     Date Received: 02/08/05
Batch No.   : 058044                  Date Extracted: 02/08/05 17:00
Sample ID   : 86-S1-088                Date Analyzed: 02/15/05 01:42
Lab Samp ID : B044-02                  Dilution Factor: .94
Lab File ID : RBH175                   Matrix          : WATER
Ext Btch ID : SVB006W                  % Moisture      : NA
Calib. Ref. : RBH022                   Instrument ID   : T-041
=====

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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	19	9.4
2,4-DINITROTOLUENE	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	5.6
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	9.4	4.7
2-NITROANILINE	ND	19	5.6
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLORO BENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	9.4	4.7
4,6-DINITRO-2-METHYLPHENOL	ND	19	9.4
4-BROMOPHENYL-PHENYL ETHER	ND	19	6.6
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	9.4	4.7
4-NITROPHENOL	ND	19	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	9.4	4.7
BIS(2-ETHYLHEXYL)PHTHALATE	ND	19	9.4
BUTYLBENZYL PHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYL PHTHALATE	ND	9.4	4.7
DI-N-OCTYL PHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	9.4	4.7
DIETHYL PHTHALATE	ND	19	5.6
DIMETHYL PHTHALATE	ND	19	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	9.4	4.7
HEXACHLOROBENZENE	ND	19	5.6
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSDIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	9.4	4.7
PENTACHLOROPHENOL	ND	19	9.4
PHENANTHRENE	ND	19	5.6
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	4.7
ACETOPHENONE	ND	9.4	4.7
ATRAZINE	ND	9.4	2.3
BENZALDEHYDE	ND	19	9.4
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	76	25-134
2-FLUOROBIPHENYL	65	43-125
2-FLUOROPHENOL	48	25-125
NITROBENZENE-D5	60	32-125
PHENOL-D5	57	25-125
TERPHENYL-D14	91	42-126

RL: Reporting Limit  
(1): Cannot be separated from 3-Methylphenol  
(2): Cannot be separated from Diphenylamine

SW 3520C/8270C  
SEMI VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC.  
Project : MFA, SITE 1, CTO 86  
Batch No. : 058044  
Sample ID: 86-S1-089  
Lab Samp ID: B044-03  
Lab File ID: RBH176  
Ext Btch ID: SVB006W  
Calib. Ref.: RBH022  
Date Collected: 02/01/05  
Date Received: 02/08/05  
Date Extracted: 02/08/05 17:00  
Date Analyzed: 02/15/05 02:10  
Dilution Factor: .94  
Matrix : WATER  
% Moisture : NA  
Instrument ID : T-041

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	9.4	4.7
2,4-DINITROTOLUENE	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	9.4
2-CHLORONAPHTHALENE	ND	19	5.6
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	9.4	4.7
2-NITROANILINE	ND	9.4	4.7
2-NITROPHENOL	ND	19	5.6
3,3'-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	9.4	4.7
4,6-DINITRO-2-METHYLPHENOL	ND	9.4	4.7
4-BROMOPHENYL-PHENYL ETHER	ND	19	9.4
4-CHLORO-3-METHYLPHENOL	ND	19	6.6
4-CHLOROPHENOL	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	9.4	4.7
4-NITROPHENOL	ND	9.4	4.7
ACENAPHTHENE	ND	19	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	9.4	4.7
BIS(2-ETHYLHEXYL)PHTHALATE	ND	19	9.4
BUTYLBENZYLPHthalate	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHthalate	ND	9.4	4.7
DI-N-OCTYLPHthalate	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	9.4	4.7
DIETHYLPHthalate	ND	19	5.6
DIMETHYLPHthalate	ND	19	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	9.4	4.7
HEXACHLOROBENZENE	ND	19	5.6
HEXACHLOROCYClopentadiene	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSDIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	9.4	4.7
PENTACHLOROPHENOL	ND	9.4	4.7
PHENANTHRENE	ND	19	9.4
PHENOL	ND	19	5.6
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	4.7
ACETOPHENONE	ND	9.4	4.7
ATRAZINE	ND	9.4	2.3
BENZALDEHYDE	ND	19	9.4
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
2,4,6-TRIBROMOPHENOL	79	25-134	
2-FLUOROBIPHENYL	69	43-125	
2-FLUOROPHENOL	54	25-125	
NITROBENZENE-D5	66	32-125	
PHENOL-D5	60	25-125	
TERPHENYL-D14	101	42-126	

RL: Reporting Limit  
(1): Cannot be separated from 3-Methylphenol  
(2): Cannot be separated from Diphenylamine

SW 3520C/8270C  
 SEMI VOLATILE ORGANICS BY GC/MS

```

=====
Client   : TETRA TECH FW, INC.      Date Collected: 02/01/05
Project  : MFA SITE 1, CTO 86      Date Received: 02/08/05
Batch No.: 05B044                  Date Extracted: 02/08/05 17:00
Sample ID: 86-S1-090               Date Analyzed: 02/15/05 02:37
Lab Samp ID: B044-04               Dilution Factor: .94
Lab File ID: RBH177                Matrix : WATER
Ext Btch ID: SVB006W               % Moisture : NA
Calib. Ref.: RBH022                Instrument ID : T-041
=====
  
```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	19	9.4
2,4-DINITROTOLUENE	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	5.6
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	9.4	4.7
2-NITROANILINE	ND	19	5.6
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLORO BENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	9.4	4.7
4,6-DINITRO-2-METHYLPHENOL	ND	19	9.4
4-BROMOPHENYL-PHENYL ETHER	ND	19	6.6
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	9.4	4.7
4-NITROPHENOL	ND	19	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	9.4	4.7
BIS(2-ETHYLHEXYL)PHTHALATE	ND	19	9.4
BUTYLBENZYL PHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYL PHTHALATE	ND	9.4	4.7
DI-N-OCTYL PHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	9.4	4.7
DIETHYL PHTHALATE	ND	19	5.6
DIMETHYL PHTHALATE	ND	19	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	9.4	4.7
HEXACHLORO BENZENE	ND	19	5.6
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSDIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	9.4	4.7
PENTACHLOROPHENOL	ND	19	9.4
PHENANTHRENE	ND	19	5.6
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	4.7
ACETOPHENONE	ND	9.4	2.3
ATRAZINE	ND	19	9.4
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	73	25-134
2-FLUOROBIPHENYL	59	43-125
2-FLUOROPHENOL	44	25-125
NITROBENZENE-D5	57	32-125
PHENOL-D5	47	25-125
TERPHENYL-D14	97	42-126

RL: Reporting Limit  
 (1): Cannot be separated from 3-Methylphenol  
 (2): Cannot be separated from Diphenylamine

## CASE NARRATIVE

**CLIENT:** TETRA TECH FW, INC.  
**PROJECT:** MFA, SITE 1, CTO 86  
**SDG:** 05B044

### METHOD 7470A DISSOLVED MERCURY BY COLD VAPOR

Four (4) water samples were received on 02/08/05 for Dissolved Mercury analysis by Method 7470A in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3<sup>rd</sup> edition.

1. **Holding Time**  
Analysis met holding time criteria.
2. **Method Blank**  
Method blank was free of contamination at the reporting limit.
3. **Lab Control Sample/Lab Control Sample Duplicate**  
Lab control results were within QC limit.
4. **Serial Dilution / Post-Analytical Spike**  
Sample B023-02 from another SDG was analyzed for serial dilution and post-analytical spike. All QC requirements were met.
5. **Duplicate**  
Duplicate sample was not designated in this SDG.
6. **Matrix Spike/Matrix Spike Duplicate**  
No MS/MSD sample was designated in this SDG.
7. **Sample Analysis**  
Samples were analyzed according to the prescribed QC procedures. All criteria were met.

METHOD 7470A  
DISSOLVED MERCURY BY COLD VAPOR

Client : TETRA TECH FW, INC.  
Project : MFA, SITE 1, CTO 86  
Batch No. : 058044

Matrix : WATER  
Instrument ID : 11047

SAMPLE ID	EMAX SAMPLE ID	RESULTS (ug/L)	DLF	MOIST	RL (ug/L)	MDL (ug/L)	Analysis DATE/TIME	Extraction DATE/TIME	LFID	CAL REF	PREP BATCH	Collection DATE/TIME	Received DATE/TIME
MBLK1W	HGB011WB	ND	1	NA	.2	.1	02/11/0515:46	02/11/0512:00	M478013010	M478013008	HGB011W	NA	02/11/05
LCSTW	HGB011WL	5.3	1	NA	.2	.1	02/11/0515:49	02/11/0512:00	M478013011	M478013008	HGB011W	NA	02/11/05
LCSTW	HGB011WC	5.21	1	NA	.2	.1	02/11/0515:51	02/11/0512:00	M478013012	M478013008	HGB011W	NA	02/11/05
86-S1-086	B044-01	ND	1	NA	.2	.1	02/11/0516:28	02/11/0512:00	M478013029	M478013020	HGB011W	02/01/05	02/08/05
86-S1-088	B044-02	ND	1	NA	.2	.1	02/11/0516:30	02/11/0512:00	M478013030	M478013020	HGB011W	02/01/05	02/08/05
86-S1-089	B044-03	ND	1	NA	.2	.1	02/11/0516:32	02/11/0512:00	M478013031	M478013020	HGB011W	02/01/05	02/08/05
86-S1-090	B044-04	ND	1	NA	.2	.1	02/11/0516:39	02/11/0512:00	M478013034	M478013032	HGB011W	02/01/05	02/08/05

RL: Reporting Limit

7003

COPY

LDC Report# 13235C2

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Airfield, Site 1, CTO 86

**Collection Date:** February 1, 2005

**LDC Report Date:** March 10, 2005

**Matrix:** Water

**Parameters:** Semivolatiles

**Validation Level:** EPA Level III & IV

**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 05B044

**Sample Identification**

86-S1-086

86-S1-088

86-S1-089

86-S1-090\*\*

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 4 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270C for Semivolatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

Cooler temperatures for all samples were reported at 10.4°C upon receipt by the laboratory.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## **III. Initial Calibration**

Initial calibration was performed using required standard concentrations.

The mean percent relative standard deviation (%RSD) for all compounds was less than or equal to 15.0% and less than or equal to 30.0% for selected individual compounds.

A curve fit, based on the initial calibration, was established for quantitation for selected compounds. The coefficient of determination ( $r^2$ ) was greater than or equal to 0.990 .

Average relative response factors (RRF) for all system performance check compounds (SPCCs) were within method criteria.

## **IV. Continuing Calibration**

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 20.0% for all compounds.

Initial calibration verification (ICV) percent differences (%D) were less than or equal to 20.0% for all compounds.

All of the continuing calibration RRF values for all system performance check compounds (SPCCs) were within method criteria.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No semivolatile contaminants were found in the method blanks.



## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

All internal standard areas and retention times were within QC limits.

## **XI. Target Compound Identifications**

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XII. Compound Quantitation and CRQLs**

All compound quantitation and CRQLs were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XIII. Tentatively Identified Compounds (TICs)**

Tentatively identified compounds were not reported by the laboratory.

## **XIV. System Performance**

The system performance was within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XV. Overall Assessment**

Data flags have been summarized at the end of the report.

## **XVI. Field Duplicates**

Samples 86-S1-089 and 86-S1-090\*\* were identified as field duplicates. No semivolatiles were detected in any of the samples.

## **XVII. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Airfield, Site 1, CTO 86**  
**Semivolatiles - Data Qualification Summary - SDG 05B044**

No Sample Data Qualified in this SDG

**Moffett Airfield, Site 1, CTO 86**  
**Semivolatiles - Laboratory Blank Data Qualification Summary - SDG 05B044**

No Sample Data Qualified in this SDG

COPY

LDC Report# 13235C4

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Airfield, Site 1, CTO 86

**Collection Date:** February 1, 2005

**LDC Report Date:** March 10, 2005

**Matrix:** Water

**Parameters:** Dissolved Mercury

**Validation Level:** EPA Level III & IV

**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 05B044

**Sample Identification**

86-S1-086

86-S1-088

86-S1-089

86-S1-090\*\*

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 4 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 7470A for Dissolved Mercury.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the method stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Calibration**

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

## **III. Blanks**

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. No contaminant concentrations were found in the initial, continuing and preparation blanks.

## **IV. ICP Interference Check Sample (ICS) Analysis**

ICP interference check sample analysis is not required by the method.

## **V. Matrix Spike Analysis**

The laboratory has indicated that there were no matrix spike (MS) analyses specified for the samples in this SDG, and therefore matrix spike analyses were not performed for this SDG.

## **VI. Duplicate Sample Analysis**

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

## **VII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Internal Standards**

ICP-MS was not utilized in this SDG.

#### **IX. Furnace Atomic Absorption QC**

Graphite furnace atomic absorption was not utilized in this SDG.

#### **X. ICP Serial Dilution**

ICP serial dilution was not required by the method.

#### **XI. Sample Result Verification**

All sample result verifications met validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

#### **XII. Overall Assessment of Data**

Data flags have been summarized at the end of this report.

#### **XIII. Field Duplicates**

Samples 86-S1-089 and 86-S1-090\*\* were identified as field duplicates. No dissolved mercury was detected in any of the samples.

#### **XIV. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Airfield, Site 1, CTO 86**

**Dissolved Mercury - Data Qualification Summary - SDG 05B044**

No Sample Data Qualified in this SDG

**Moffett Airfield, Site 1, CTO 86**

**Dissolved Mercury - Laboratory Blank Data Qualification Summary - SDG 05B044**

No Sample Data Qualified in this SDG





1230 Columbia Street, Suite 500  
San Diego, CA 92101 (619) 234-8696

## CHAIN-OF-CUSTODY RECORD

PROJECT INFORMATION							
PROJECT NAME	PURCHASE ORDER NO.	PROJECT LOCATION	PROJECT NO.	SAMPLER NAME	AIRBILL NUMBER		
STEEL-R7/05	20844 TASK 28	MOFFETT FIELD, CA	1990-0866	BILL OGLE	845707613540		
PROJECT CONTACT LYNN JEFFERSON (949) 758-7588							
SAMPLE ID	DATE COLLECTED	TIME COLLECTED	NO OF CONTAINER	LEVEL		TYPET	
				3	4	T	P
86-SI-091	2-2-05	1330	3	X		W	DAY
86-SI-092	2-2-05	1415	3	X		W	DAY
86-SI-093	2-2-05	1500	3	X		W	DAY
86-SI-094	2-2-05	1515	3	X		W	DAY
86-SI-095	2-2-05	1630	3	X		W	DAY
LABORATORY INSTRUCTIONS/COMMENTS <div>RECEIVED BY (Signature) COMPANY RECEIVED BY (Signature)</div> <div>RECEIVED BY (Signature) COMPANY RECEIVED BY (Signature)</div> <div>RECEIVED BY (Signature) COMPANY RECEIVED BY (Signature)</div> <div>RECEIVED BY (Signature) COMPANY RECEIVED BY (Signature)</div>							
COMPOSITE DESCRIPTION NA							
SAMPLE CONDITION UPON RECEIPT (FOR LABORATORY) TEMPERATURE: _____ SAMPLE CONDITION: <input type="checkbox"/> INTACT <input type="checkbox"/> BROKEN COOLER SEAL: <input type="checkbox"/> INTACT <input type="checkbox"/> BROKEN							

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management

0016574-1N



**LABORATORIES, INC.**

1835 W. 205th Street  
Torrance, CA 90501  
Tel: (310) 618-8889  
Fax: (310) 618-0818

13235B

Date: 02-18-2005  
EMAX Batch No.: 05B028

Attn: Lynn Jefferson

Tetra Tech FW, Inc.  
1940 E Deere Ave, Suite 200  
Santa Ana CA 92705

Subject: Laboratory Report  
Project: MFA, Site 1, CTO 86

Enclosed is the Laboratory report for samples received on  
02/04/05. The data reported include :

Sample ID	Control #	Col Date	Matrix	Analysis
86-S1-091	B028-01	02/02/05	WATER	MERCURY DISSOLVED SEMIVOLATILE ORGANICS BY GCMS
86-S1-092	B028-02	02/02/05	WATER	MERCURY DISSOLVED SEMIVOLATILE ORGANICS BY GCMS
86-S1-093	B028-03	02/02/05	WATER	MERCURY DISSOLVED SEMIVOLATILE ORGANICS BY GCMS
86-S1-094	B028-04	02/02/05	WATER	MERCURY DISSOLVED SEMIVOLATILE ORGANICS BY GCMS
86-S1-095	B028-05	02/02/05	WATER	MERCURY DISSOLVED SEMIVOLATILE ORGANICS BY GCMS

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning  
these results.

Sincerely yours,

Kam Y. Pang, Ph.D.  
Laboratory Director

**CASE NARRATIVE**

**CLIENT:** TETRA TECH FW, INC.  
**PROJECT:** MFA, SITE 1, CTO 86  
**SDG:** 05B028

**SW 3520C/8270C  
SEMI VOLATILE ORGANICS BY GC/MS**

Five (5) water samples were received on 02/04/05 for Semi Volatile Organic analysis by Method 3520C/8270C in accordance with USEPA SW846, 3<sup>rd</sup> ed.

**1. Holding Time**

Analytical holding time was met.

**2. Tuning and Calibration**

Tuning and calibration were carried out at 12-hour interval. All QC requirements were met.

**3. Method Blank**

Method blank was free of contamination at the reporting limit.

**4. Surrogate Recovery**

Recoveries were within QC limit.

**5. Lab Control Sample/Lab Control Sample Duplicate**

Recoveries were within QC limit.

**6. Matrix Spike/Matrix Spike Duplicate**

No MS/MSD sample was designated in this SDG.

**7. Sample Analysis**

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

SW 3520C/8270C  
SEMI VOLATILE ORGANICS BY GC/MS

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=====
Client       : TETRA TECH FW, INC.
Project      : MFA, SITE 1, CTO 86
Batch No.    : 058028
Sample ID    : 86-S1-091
Lab Samp ID  : 6028-01
Lab File ID  : RBH166
Ext Btch ID  : SVB006W
Calib. Ref.  : RBH022
Date Collected: 02/02/05
Date Received: 02/04/05
Date Extracted: 02/07/05 17:00
Date Analyzed: 02/14/05 21:33
Dilution Factor: .94
Matrix       : WATER
% Moisture   : NA
Instrument ID : T-041
=====

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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	19	9.4
2,4-DINITROTOLUENE	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	5.6
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	9.4	4.7
2-NITROANILINE	ND	19	5.6
3-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	9.4	4.7
4,6-DINITRO-2-METHYLPHENOL	ND	19	9.4
4-BROMOPHENYL-PHENYL ETHER	ND	19	6.6
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	9.4	4.7
4-NITROPHENOL	ND	19	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	9.4	4.7
BIS(2-ETHYLHEXYL)PHTHALATE	ND	19	9.4
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHTHALATE	ND	9.4	4.7
DI-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	9.4	4.7
DIETHYLPHTHALATE	ND	19	4.7
DIMETHYLPHTHALATE	ND	19	5.6
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	9.4	4.7
HEXACHLORO BENZENE	ND	19	5.6
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSDIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	9.4	4.7
PENTACHLOROPHENOL	ND	19	9.4
PHENANTHRENE	ND	19	5.6
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	4.7
ACETOPHENONE	ND	9.4	4.7
ATRAZINE	ND	9.4	2.3
BENZALDEHYDE	ND	19	9.4
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
2,4,6-TRIBROMOPHENOL	77	25-134	
2-FLUOROBIPHENYL	66	43-125	
2-FLUOROPHENOL	64	25-125	
NITROBENZENE-D5	70	32-125	
PHENOL-D5	70	25-125	
TERPHENYL-D14	104	42-126	

RL: Reporting Limit  
(1): Cannot be separated from 3-Methylphenol  
(2): Cannot be separated from Diphenylamine

SW 3520C/8270C  
 SEMI VOLATILE ORGANICS BY GC/MS

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=====
Client      : TETRA TECH FW, INC.      Date Collected: 02/02/05
Project     : MFA, SITE 1, CTO 86      Date Received: 02/04/05
Batch No.   : 058028                   Date Extracted: 02/07/05 17:00
Sample ID   : 86-S1-092                 Date Analyzed: 02/14/05 22:01
Lab Samp ID : B028-02                   Dilution Factor: .94
Lab File ID : RBH167                     Matrix : WATER
Ext Btch ID : SVB006W                    % Moisture : NA
Calib. Ref. : RBH022                     Instrument ID : T-041
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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	19	9.4
2,4-DINITROTOLUENE	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	5.6
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	9.4	4.7
2-NITROANILINE	ND	19	5.6
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	9.4	4.7
4,6-DINITRO-2-METHYLPHENOL	ND	19	9.4
4-BROMOPHENYL-PHENYL ETHER	ND	19	6.6
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	9.4	4.7
4-NITROPHENOL	ND	19	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	9.4	4.7
BIS(2-ETHYLHEXYL)PHTHALATE	ND	19	9.4
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
D1-N-BUTYLPHTHALATE	ND	9.4	4.7
D1-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	9.4	4.7
DIETHYLPHTHALATE	ND	19	5.6
DMETHYLPHTHALATE	ND	19	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	9.4	4.7
HEXACHLOROBENZENE	ND	19	5.6
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-D1-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSDIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	9.4	4.7
PENTACHLOROPHENOL	ND	19	9.4
PHENANTHRENE	ND	19	5.6
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	4.7
ACETOPHENONE	ND	9.4	2.3
ATRAZINE	ND	19	9.4
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
2,4,6-TRIBROMOPHENOL	79	25-134	
2-FLUOROBIPHENYL	59	43-125	
2-FLUOROPHENOL	51	25-125	
NITROBENZENE-D5	60	32-125	
PHENOL-D5	58	25-125	
TERPHENYL-D14	98	42-126	

RL: Reporting Limit  
 (1): Cannot be separated from 3-Methylphenol  
 (2): Cannot be separated from Diphenylamine

SW 3520C/8270C  
SEMI VOLATILE ORGANICS BY GC/MS

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=====
Client      : TETRA TECH FW, INC.      Date Collected: 02/02/05
Project     : MFA, SITE 1, CTO 86      Date Received: 02/04/05
Batch No.   : 05B028                   Date Extracted: 02/07/05 17:00
Sample ID   : 86-S1-093                 Date Analyzed: 02/14/05 22:28
Lab Samp ID : B028-03                    Dilution Factor: .94
Lab File ID : RBH168                      Matrix          : WATER
Ext Btch ID : SVB006W                     % Moisture       : NA
Calib. Ref. : RBH022                     Instrument ID    : T-041
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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	19	9.4
2,4-DINITROTOLUENE	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	5.6
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	9.4	4.7
2-NITROANILINE	ND	19	5.6
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLORO BENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	9.4	4.7
4,6-DINITRO-2-METHYLPHENOL	ND	19	9.4
4-BROMOPHENYL-PHENYL ETHER	ND	19	6.6
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	9.4	4.7
4-NITROPHENOL	ND	19	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	9.4	4.7
BIS(2-ETHYLHEXYL)PHTHALATE	ND	19	9.4
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
D1-N-BUTYLPHTHALATE	ND	9.4	4.7
D1-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	9.4	4.7
DIETHYLPHTHALATE	HC	19	5.6
DIMETHYLPHTHALATE	ND	19	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	9.4	4.7
HEXACHLOROBENZENE	ND	19	5.6
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSODIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	9.4	4.7
PENTACHLOROPHENOL	ND	19	9.4
PHENANTHRENE	ND	19	5.6
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	4.7
ACETOPHENONE	ND	9.4	4.7
ATRAZINE	ND	19	2.3
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
2,4,6-TRIBROMOPHENOL	93	25-134	
2-FLUOROBIPHENYL	67	43-125	
2-FLUOROPHENOL	59	25-125	
NITROBENZENE-D5	70	32-125	
PHENOL-D5	67	25-125	
TERPHENYL-D14	106	42-126	

RL: Reporting Limit  
 (1): Cannot be separated from 3-Methylphenol  
 (2): Cannot be separated from Diphenylamine

SW 3520C/8270C  
 SEMI VOLATILE ORGANICS BY GC/MS

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=====
Client      : TETRA TECH FW, INC.      Date Collected: 02/02/05
Project     : MFA SITE 1, CTO 86      Date Received: 02/04/05
Batch No.   : 05B028                 Date Extracted: 02/07/05 17:00
Sample ID   : 86-S1-094              Date Analyzed: 02/14/05 22:56
Lab Samp ID : B028-04                Dilution Factor: .94
Lab File ID : RBH169                 Matrix       : WATER
Ext Btch ID : SVB006W                % Moisture   : NA
Calib. Ref. : RBH022                 Instrument ID : T-041
=====
  
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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	19	9.4
2,4-DINITROTOLUENE	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	5.6
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	9.4	4.7
2-NITROANILINE	ND	19	5.6
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	9.4	4.7
4,6-DINITRO-2-METHYLPHENOL	ND	19	9.4
4-BROMOPHENYL-PHENYL ETHER	ND	19	6.6
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	9.4	4.7
4-NITROPHENOL	ND	19	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	9.4	4.7
BIS(2-ETHYLHEXYL)PHTHALATE	ND	19	9.4
BUTYL BENZYL PHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
D1-N-BUTYL PHTHALATE	ND	9.4	4.7
D1-N-OCTYL PHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	9.4	4.7
DIETHYL PHTHALATE	ND	19	5.6
DIMETHYL PHTHALATE	ND	19	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	9.4	4.7
HEXACHLOROBENZENE	ND	19	5.6
HEXACHLORO CYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-D1-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSO-DIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	9.4	4.7
PENTACHLOROPHENOL	ND	19	9.4
PHENANTHRENE	ND	19	5.6
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	4.7
ACETOPHENONE	ND	9.4	2.3
ATRAZINE	ND	19	9.4
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	78	25-134
2-FLUOROBIPHENYL	56	43-125
2-FLUOROPHENOL	57	25-125
NITROBENZENE-D5	63	32-125
PHENOL-D5	64	25-125
TERPHENYL-D14	97	42-126

RL: Reporting Limit  
 (1): Cannot be separated from 3-Methylphenol  
 (2): Cannot be separated from Diphenylamine

SW 3520C/B270C  
SEMI VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC.  
Project : MFA, SITE 1, CTO 86  
Batch No. : 05B028  
Sample ID: 86-S1-095  
Lab Samp ID: B028-05  
Lab File ID: RBH170  
Ext Btch ID: SVB006W  
Calib. Ref.: RBH022

Date Collected: 02/02/05  
Date Received: 02/04/05  
Date Extracted: 02/07/05 17:00  
Date Analyzed: 02/14/05 23:24  
Dilution Factor: .94  
Matrix : WATER  
% Moisture : NA  
Instrument ID : T-041

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	19	9.4
2,4-DINITROTOLUENE	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	5.6
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	9.4	4.7
2-NITROANILINE	ND	9.4	4.7
2-NITROPHENOL	ND	9.4	5.6
3,3'-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	9.4	4.7
4,6-DINITRO-2-METHYLPHENOL	ND	9.4	4.7
4-BROMOPHENYL-PHENYL ETHER	ND	19	9.4
4-CHLORO-3-METHYLPHENOL	ND	19	6.6
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	9.4	4.7
4-NITROPHENOL	ND	9.4	4.7
ACENAPHTHENE	ND	19	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	9.4	4.7
BIS(2-ETHYLHEXYL)PHTHALATE	ND	19	9.4
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHTHALATE	ND	9.4	4.7
DI-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	9.4	4.7
DIETHYLPHTHALATE	ND	19	5.6
DIETHYLPHTHALATE	ND	19	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	9.4	4.7
HEXACHLOROBENZENE	ND	19	5.6
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSOBIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	9.4	4.7
PENTACHLOROPHENOL	ND	19	9.4
PHENANTHRENE	ND	19	5.6
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	4.7
ACETOPHENONE	ND	9.4	4.7
ATRAZINE	ND	9.4	2.3
BENZALDEHYDE	ND	19	9.4
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7
SURROGATE PARAMETERS	% RECOVERY	GC LIMIT	
2,4,6-TRIBROMOPHENOL	76	25-134	
2-FLUOROBIPHENYL	52	43-125	
2-FLUOROPHENOL	42	25-125	
NITROBENZENE-D5	49	32-125	
PHENOL-D5	52	25-125	
TERPHENYL-D14	97	42-126	

RL: Reporting Limit  
(1): Cannot be separated from 3-Methylphenol  
(2): Cannot be separated from Diphenylamine



**CASE NARRATIVE**

**CLIENT:** TETRA TECH FW, INC.  
**PROJECT:** MFA, SITE 1, CTO 86  
**SDG:** 05B028

**METHOD 7470A  
DISSOLVED MERCURY BY COLD VAPOR**

Five (5) water samples were received on 02/04/05 for Mercury analysis by Method 7470A in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3<sup>rd</sup> edition.

**1. Holding Time**

Analysis met holding time criteria.

**2. Method Blank**

Method blank was free of contamination at the reporting limit.

**3. Lab Control Sample/Lab Control Sample Duplicate**

Lab control results were within QC limit.

**4. Serial Dilution /Analytical Spike**

Sample B023-02 from another SDG was analyzed for serial dilution and analytical spike. QC criteria were met.

**5. Matrix Spike/Matrix Spike Duplicate**

No MS/MSD sample was designated in this SDG.

**6. Sample Analysis**

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

METHOD 7470A  
DISSOLVED MERCURY BY COLD VAPOR

Client : TETRA TECH FW, INC.  
Project : MFA, SITE 1, CTO 86  
Batch No. : 058028

Matrix : WATER  
Instrument ID : T1047

SAMPLE ID	EMAX SAMPLE ID	RESULTS (UG/L)	DLF	MOIST	RL (UG/L)	MDL (UG/L)	Analysis DATE/TIME	Extraction DATE/TIME	LFID	CAL REF	PREP BATCH	Collection DATE/TIME	Received DATE/TIME
MBLK1W	HGB011WB	ND	1	NA	-2	.1	02/11/0515:46	02/11/0512:00	M478013010	M478013008	HGB011W	NA	02/11/05
LCS1W	HGB011WL	5.3	1	NA	-2	.1	02/11/0515:49	02/11/0512:00	M478013011	M478013008	HGB011W	NA	02/11/05
LCD1W	HGB011WC	5.21	1	NA	-2	.1	02/11/0515:51	02/11/0512:00	M478013012	M478013008	HGB011W	NA	02/11/05
86-S1-091	8028-01	ND	1	NA	-2	.1	02/11/0516:41	02/11/0512:00	M478013035	M478013032	HGB011W	02/02/05	02/04/05
86-S1-092	8028-02	ND	1	NA	-2	.1	02/11/0516:43	02/11/0512:00	M478013036	M478013032	HGB011W	02/02/05	02/04/05
86-S1-093	8028-03	ND	1	NA	-2	.1	02/11/0516:46	02/11/0512:00	M478013037	M478013032	HGB011W	02/02/05	02/04/05
86-S1-094	8028-04	ND	1	NA	-2	.1	02/11/0516:48	02/11/0512:00	M478013038	M478013032	HGB011W	02/02/05	02/04/05
86-S1-095	8028-05	ND	1	NA	-2	.1	02/11/0516:50	02/11/0512:00	M478013039	M478013032	HGB011W	02/02/05	02/04/05

RL: Reporting Limit

7003

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LDC Report# 13235B2

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Airfield, Site 1, CTO 86

**Collection Date:** February 2, 2005

**LDC Report Date:** March 10, 2005

**Matrix:** Water

**Parameters:** Semivolatiles

**Validation Level:** EPA Level III & IV

**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 05B028

**Sample Identification**

86-S1-091

86-S1-092

86-S1-093\*\*

86-S1-094

86-S1-095

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 5 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270C for Semivolatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## **III. Initial Calibration**

Initial calibration was performed using required standard concentrations.

The mean percent relative standard deviation (%RSD) for all compounds was less than or equal to 15.0% and less than or equal to 30.0% for selected individual compounds.

A curve fit, based on the initial calibration, was established for quantitation for selected compounds. The coefficient of determination ( $r^2$ ) was greater than or equal to 0.990 .

Average relative response factors (RRF) for all system performance check compounds (SPCCs) were within method criteria.

## **IV. Continuing Calibration**

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 20.0% for all compounds.

Initial calibration verification (ICV) percent differences (%D) were less than or equal to 20.0% for all compounds.

All of the continuing calibration RRF values for all system performance check compounds (SPCCs) were within method criteria.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No semivolatile contaminants were found in the method blanks.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were not within QC limits. Since there were no associated samples, no data were qualified.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

All internal standard areas and retention times were within QC limits.

## **XI. Target Compound Identifications**

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XII. Compound Quantitation and CRQLs**

All compound quantitation and CRQLs were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XIII. Tentatively Identified Compounds (TICs)**

Tentatively identified compounds were not reported by the laboratory.

## **XIV. System Performance**

The system performance was within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XV. Overall Assessment**

Data flags have been summarized at the end of the report.

## **XVI. Field Duplicates**

No field duplicates were identified in this SDG.

## **XVII. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Airfield, Site 1, CTO 86**  
**Semivolatiles - Data Qualification Summary - SDG 05B028**

No Sample Data Qualified in this SDG

**Moffett Airfield, Site 1, CTO 86**  
**Semivolatiles - Laboratory Blank Data Qualification Summary - SDG 05B028**

No Sample Data Qualified in this SDG



COPY

LDC Report# 13235B4

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Airfield, Site 1, CTO 86  
**Collection Date:** February 2, 2005  
**LDC Report Date:** March 10, 2005  
**Matrix:** Water  
**Parameters:** Dissolved Mercury  
**Validation Level:** EPA Level III & IV  
**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 05B028

**Sample Identification**

86-S1-091  
86-S1-092  
86-S1-093\*\*  
86-S1-094  
86-S1-095

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 5 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 7470A for Dissolved Mercury.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the method stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Calibration**

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

## **III. Blanks**

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. No contaminant concentrations were found in the initial, continuing and preparation blanks.

## **IV. ICP Interference Check Sample (ICS) Analysis**

ICP interference check sample analysis is not required by the method.

## **V. Matrix Spike Analysis**

The laboratory has indicated that there were no matrix spike (MS) analyses specified for the samples in this SDG, and therefore matrix spike analyses were not performed for this SDG.

## **VI. Duplicate Sample Analysis**

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

## **VII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Internal Standards**

ICP-MS was not utilized in this SDG.

#### **IX. Furnace Atomic Absorption QC**

Graphite furnace atomic absorption was not utilized in this SDG.

#### **X. ICP Serial Dilution**

ICP serial dilution was not required by the method.

#### **XI. Sample Result Verification**

All sample result verifications met validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

#### **XII. Overall Assessment of Data**

Data flags have been summarized at the end of this report.

#### **XIII. Field Duplicates**

No field duplicates were identified in this SDG.

#### **XIV. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Airfield, Site 1, CTO 86**  
**Dissolved Mercury - Data Qualification Summary - SDG 05B028**

No Sample Data Qualified in this SDG

**Moffett Airfield, Site 1, CTO 86**  
**Dissolved Mercury - Laboratory Blank Data Qualification Summary - SDG 05B028**

No Sample Data Qualified in this SDG



NUMBER 254

PROJECT NAME		PURCHASE ORDER NO		ANALYSES REQUIRED				LABORATORY NAME		Project Information Section Do not submit to Laboratory	
SITE / Baseline - R8/05		# 20848 - Task 28						EMAX			
PROJECT LOCATION		PROJECT NO.						LABORATORY ID (FOR LABORATORY)			
MFA		1990.086E						DSC073			
SAMPLER NAME		AIRBILL NUMBER									
D. Harrison		850158348186									
PROJECT CONTACT		PROJECT CONTACT PHONE NUMBER									
Lynn Jefferson		949/786-7500									
SAMPLE ID	DATE COLLECTED	TIME COLLECTED	NO OF CONTAINER	LEVEL	T P	T A	T E	COMMENTS	LOCATION	DEPTH	QC
				3 4						START	END
86-S1-096	3/7/05	1035	3	X				X	W1-12		Reg
86-S1-097	3/7/05	1130	4	X				X	W1-15		Reg
86-S1-098	3/7/05	1240	3	X				X	W1-19		Reg
86-S1-100	3/7/05	1340	3	X				X	W1-14		Reg
86-S1-101	3/7/05	1500	3	X				X	W1-12R		Reg
86-S1-102	3/8/05	0850	3	X				X	W1-22		Reg
86-S1-103	3/8/05	1007	3	X				X	W1-5		Reg
86-S1-104	3/8/05	1015	3	X				X	W1-5		LD
86-S1-105	3/8/05	1055	3	X				X	W1-8		Reg
2911	3/8/05								2911		
LABORATORY INSTRUCTIONS/COMMENTS: D. Harrison samples were field filter											
RELINQUISHED BY (Signature)		RECEIVED BY (Signature)		COMPOSITE DESCRIPTION							
D. Harrison		FEDEx									
COMPANY		COMPANY									
RELINQUISHED BY (Signature)		RECEIVED BY (Signature)									
COMPANY		COMPANY									
RELINQUISHED BY (Signature)		RECEIVED BY (Signature)		SAMPLE CONDITION UPON RECEIPT (FOR LABORATORY)							
COMPANY		COMPANY		TEMPERATURE: <input type="checkbox"/> INTACT <input type="checkbox"/> BROKEN							
				COOLER SEAL: <input type="checkbox"/> INTACT <input type="checkbox"/> BROKEN							

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management

0016927-1N



**LABORATORIES, INC.**

1835 W. 205th Street

Torrance, CA 90501

Tel: (310) 618-8889

Fax: (310) 618-0818

Date: 03-29-2005

EMAX Batch No.: 05C073

Attn: Lynn Jefferson

Tetra Tech FW, Inc.

1940 E Deere Ave, Suite 200

Santa Ana CA 92705

Subject: Laboratory Report

Project: MFA, Site 1, CTO 86

Enclosed is the Laboratory report for samples received on 03/09/05. The data reported include :

Sample ID	Control #	Col Date	Matrix	Analysis
86-S1-096	C073-01	03/07/05	WATER	MERCURY DISSOLVED
86-S1-097	C073-02	03/07/05	WATER	SEMIVOLATILE ORGANICS BY GCMS MERCURY DISSOLVED
86-S1-098	C073-03	03/07/05	WATER	SEMIVOLATILE ORGANICS BY GCMS MERCURY DISSOLVED
86-S1-100	C073-04	03/07/05	WATER	SEMIVOLATILE ORGANICS BY GCMS MERCURY DISSOLVED
86-S1-101	C073-05	03/07/05	WATER	SEMIVOLATILE ORGANICS BY GCMS MERCURY DISSOLVED
86-S1-102	C073-06	03/08/05	WATER	SEMIVOLATILE ORGANICS BY GCMS MERCURY DISSOLVED
86-S1-103	C073-07	03/08/05	WATER	SEMIVOLATILE ORGANICS BY GCMS MERCURY DISSOLVED
86-S1-104	C073-08	03/08/05	WATER	SEMIVOLATILE ORGANICS BY GCMS MERCURY DISSOLVED
86-S1-105	C073-09	03/08/05	WATER	SEMIVOLATILE ORGANICS BY GCMS MERCURY DISSOLVED
86-S1-097MS	C073-02M	03/07/05	WATER	SEMIVOLATILE ORGANICS BY GCMS MERCURY DISSOLVED

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Sample ID	Control #	Col Date	Matrix	Analysis
86-S1-097MSD	C073-02S	03/07/05	WATER	SEMIVOLATILE ORGANICS BY GCMS MERCURY DISSOLVED SEMIVOLATILE ORGANICS BY GCMS

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,

*K. Y. Pang*  
Kam Y. Pang, Ph.D.  
Laboratory Director

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**CASE NARRATIVE**

**CLIENT:** TETRA TECH FW, INC.  
**PROJECT:** MFA, SITE 1, CTO 86  
**SDG:** 05C073

**SW 3520C/8270C  
SEMI VOLATILE ORGANICS BY GC/MS**

Nine (9) water samples were received on 03/09/05 for Semi Volatile Organic analysis by Method 3520C/8270C in accordance with USEPA SW846, 3<sup>rd</sup> ed.

**1. Holding Time**

Analytical holding time was met.

**2. Tuning and Calibration**

Tuning and calibration were carried out at 12-hour interval. All QC requirements were met.

**3. Method Blank**

Method blank was free of contamination at the reporting limit.

**4. Surrogate Recovery**

Recoveries were within QC limit.

**5. Lab Control Sample/Lab Control Sample Duplicate**

Recoveries were within QC limit.

**6. Matrix Spike/Matrix Spike Duplicate**

Sample C073-02 was spiked. All recoveries were within QC limit.

**7. Sample Analysis**

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

SW 3520C/8270C  
 SEMI VOLATILE ORGANICS BY GC/MS

```

=====
Client      : TETRA TECH FW, INC.      Date Collected: 03/07/05
Project     : MFA SITE 1, CTO 86      Date Received: 03/09/05
Batch No.   : 05C073                  Date Extracted: 03/10/05 18:00
Sample ID   : 86-S1-096                Date Analyzed: 03/14/05 16:40
Lab Samp ID : C073-01                  Dilution Factor: .94
Lab File ID : RCH218                    Matrix      : WATER
Ext Btch ID : SVC020W                    % Moisture   : NA
Calib. Ref. : RBH022                    Instrument ID : T-041
=====
  
```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	5.6
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	9.4	4.7
2-NITROANILINE	ND	19	5.6
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	9.4	4.7
4,6-DINITRO-2-METHYLPHENOL	ND	19	9.4
4-BROMOPHENYL-PHENYL ETHER	ND	19	6.6
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	9.4	4.7
4-NITROPHENOL	ND	19	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	9.4	4.7
BIS(2-ETHYLHEXYL)PHTHALATE	ND	19	9.4
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
D1-N-BUTYLPHTHALATE	ND	9.4	4.7
D1-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	9.4	4.7
DIETHYLPHTHALATE	ND	19	5.6
DIMETHYLPHTHALATE	ND	19	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	9.4	4.7
HEXACHLOROBENZENE	ND	19	5.6
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-D1-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSODIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	9.4	4.7
PENTACHLOROPHENOL	ND	19	9.4
PHENANTHRENE	ND	19	5.6
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	4.7
ACETOPHENONE	ND	9.4	2.5
ATRAZINE	ND	19	9.4
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	62	25-134
2-FLUOROBIPHENYL	53	43-125
2-FLUOROPHENOL	42	25-125
NITROBENZENE-D5	48	35-125
PHENOL-D5	49	25-125
TERPHEHYL-D14	80	42-126

RL: Reporting Limit

(1): Cannot be separated from 3-Methylphenol

(2): Cannot be separated from Diphenylamine

SW 3520C/8270C  
SEMI VOLATILE ORGANICS BY GC/MS

=====  
Client : TETRA TECH FW, INC. Date Collected: 03/07/05  
Project : MFA, SITE 1, CTO 86 Date Received: 03/09/05  
Batch No. : 05C073 Date Extracted: 03/10/05 18:00  
Sample ID: 86-S1-097 Date Analyzed: 03/14/05 17:08  
Lab Samp ID: C073-02 Dilution Factor: .94  
Lab File ID: RCH219 Matrix : WATER  
Ext Btch ID: SVC020W % Moisture : NA  
Calib. Ref.: RBH022 Instrument ID : 1-Q41  
=====

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	9.4
5-CHLORONAPHTHALENE	ND	9.4	5.6
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	9.4	4.7
2-NITROANILINE	ND	19	5.6
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	9.4	4.7
4,6-DINITRO-2-METHYLPHENOL	ND	19	9.4
4-BROMOPHENYL-PHENYL ETHER	ND	19	6.6
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	9.4	4.7
4-NITROPHENOL	ND	19	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	9.4	4.7
BIS(2-ETHYLHEXYL)PHTHALATE	ND	19	9.4
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHTHALATE	ND	9.4	4.7
DI-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	9.4	4.7
DIETHYLPHTHALATE	ND	19	5.6
DIMETHYLPHTHALATE	ND	19	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	9.4	4.7
HEXACHLOROBENZENE	ND	19	5.6
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSODIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	9.4	4.7
PENTACHLOROPHENOL	ND	19	9.4
PHENANTHRENE	ND	19	5.6
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	4.7
ACETOPHENONE	ND	9.4	2.3
ATRAZINE	ND	19	9.4
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	75	25-134
2-FLUOROBIPHENYL	66	43-123
2-FLUOROPHENOL	52	25-125
NITROBENZENE-D5	60	32-126
PHENOL-D5	56	25-125
TERPHENYL-D14	89	42-126

RL: Reporting Limit  
(1): Cannot be separated from 3-Methylphenol  
(2): Cannot be separated from Diphenylamine

3005

SW 3520C/8270C  
SEMI VOLATILE ORGANICS BY GC/MS

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=====
Client      : TETRA TECH FW, INC.      Date Collected: 03/07/05
Project     : MFA, SITE 1, CTO 86     Date Received: 03/09/05
Batch No.   : 05C073                 Date Extracted: 03/10/05 18:00
Sample ID   : 86-S1-098              Date Analyzed: 03/14/05 18:31
Lab Samp ID : C073-03                Dilution Factor: .94
Lab File ID : RCH222                 Matrix       : WATER
Ext Btch ID : SVC020W                % Moisture    : NA
Calib. Ref. : RBH022                 Instrument ID : T-041
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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	19	9.4
2,4-DINITROTOLUENE	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	5.6
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	9.4	4.7
2-NITROANILINE	ND	19	5.6
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	9.4	4.7
4,6-DINITRO-2-METHYLPHENOL	ND	19	9.4
4-BROMOPHENYL-PHENYL ETHER	ND	19	6.6
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	9.4	4.7
4-NITROPHENOL	ND	19	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	9.4	4.7
BIS(2-ETHYLHEXYL)PHTHALATE	ND	19	9.4
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHTHALATE	ND	9.4	4.7
DI-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	9.4	4.7
DIETHYLPHTHALATE	ND	19	5.6
DIMETHYLPHTHALATE	ND	19	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	9.4	4.7
HEXACHLOROBENZENE	ND	19	5.6
HEXACHLOROCCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSDIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	9.4	4.7
PENTACHLOROPHENOL	ND	19	9.4
PHENANTHRENE	ND	19	5.6
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	4.7
ACETOPHENONE	ND	9.4	2.3
ATRAZINE	ND	19	9.4
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	74	25-134
2-FLUOROBIPHENYL	60	43-125
2-FLUOROPHENOL	22	25-125
NITROBENZENE-D5	58	36-125
PHENOL-D5	56	25-125
TERPHENYL-D14	83	42-126

RL: Reporting Limit  
(1): Cannot be separated from 3-Methylphenol  
(2): Cannot be separated from Diphenylamine

SW 3520C/8270C  
SEMI VOLATILE ORGANICS BY GC/MS

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=====
Client       : TETRA TECH FW, INC      Date Collected: 03/07/05
Project      : MFA, SITE 1, CTO 86    Date Received: 03/09/05
Batch No.    : 05C073                 Date Extracted: 03/10/05 18:00
Sample ID    : 86-S1-100              Date Analyzed: 03/14/05 18:59
Lab Samp ID  : C073-04               Dilution Factor: .94
Lab File ID  : RCH223                Matrix       : WATER
Ext Btch ID  : SVC020W               % Moisture   : NA
Calib. Ref.  : RBH022                Instrument ID : T-041
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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	19	9.4
2,4-DINITROTOLUENE	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	5.6
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	9.4	4.7
2-NITROANILINE	ND	19	5.6
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	9.4	4.7
4,6-DINITRO-2-METHYLPHENOL	ND	19	9.4
4-BROMOPHENYL-PHENYL ETHER	ND	19	6.6
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	9.4	4.7
4-NITROPHENOL	ND	19	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	9.4	4.7
BIS(2-ETHYLHEXYL)PHTHALATE	ND	19	4.7
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHTHALATE	ND	9.4	4.7
DI-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	9.4	4.7
DIETHYLPHTHALATE	ND	19	5.6
DIMETHYLPHTHALATE	ND	19	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	9.4	4.7
HEXACHLOROBENZENE	ND	19	5.6
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSDIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	9.4	4.7
PENTACHLOROPHENOL	ND	19	9.4
PHENANTHRENE	ND	19	5.6
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	4.7
ACETOPHENONE	ND	9.4	4.7
ATRAZINE	ND	19	2.5
BENZALDEHYDE	ND	9.4	9.4
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	81	25-134
2-FLUOROBIPHENYL	67	43-125
2-FLUOROPHENOL	59	25-125
NITROBENZENE-D5	67	32-125
PHENOL-D5	64	25-125
TERPHENYL-D14	88	42-126

RL: Reporting Limit  
(1): Cannot be separated from 3-Methylphenol  
(2): Cannot be separated from Diphenylamine

3007

SW 3520C/8270C  
SEMI VOLATILE ORGANICS BY GC/MS

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=====
Client       : TETRA TECH FW, INC.
Project      : MFA, SITE 1, CTO 86
Batch No.    : 050073
Sample ID    : 86-S1-101
Lab Samp ID  : C073-05
Lab File ID  : RCH238
Ext. Btch ID : SVC020W
Calib. Ref.  : RBH022
Date Collected: 03/07/05
Date Received: 03/09/05
Date Extracted: 03/10/05 18:00
Date Analyzed: 03/15/05 13:03
Dilution Factor: .95
Matrix       : WATER
% Moisture   : NA
Instrument ID : T-041
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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.5	4.8
2,4,6-TRICHLOROPHENOL	ND	9.5	4.8
2,4-DICHLOROPHENOL	ND	9.5	4.8
2,4-DIMETHYLPHENOL	ND	9.5	4.8
2,4-DINITROPHENOL	ND	10	9.5
2,4-DINITROTOLUENE	ND	10	9.5
2,6-DINITROTOLUENE	ND	10	5.7
2-CHLORONAPHTHALENE	ND	9.5	4.8
5-CHLOROPHENOL	ND	9.5	4.8
5-METHYLNAPHTHALENE	ND	9.5	4.8
5-METHYLPHENOL	ND	9.5	4.8
2-NITROANILINE	ND	9.5	4.8
2-NITROPHENOL	ND	9.5	5.7
3,3'-DICHLOROBENZIDINE	ND	9.5	4.8
3-NITROANILINE	ND	9.5	4.8
4,6-DINITRO-2-METHYLPHENOL	ND	10	9.5
4-BROMOPHENYL-PHENYL ETHER	ND	10	6.6
4-CHLORO-3-METHYLPHENOL	ND	9.5	4.8
4-CHLOROANILINE	ND	9.5	4.8
4-CHLOROPHENYL-PHENYL ETHER	ND	9.5	4.8
4-METHYLPHENOL (1)	ND	9.5	4.8
4-NITROANILINE	ND	9.5	4.8
4-NITROPHENOL	ND	9.5	4.8
ACENAPHTHENE	ND	9.5	4.8
ACENAPHTHYLENE	ND	9.5	4.8
ANTHRACENE	ND	9.5	4.8
BENZO(A)ANTHRACENE	ND	9.5	4.8
BENZO(A)PYRENE	ND	9.5	4.8
BENZO(B)FLUORANTHENE	ND	9.5	4.8
BENZO(K)FLUORANTHENE	ND	9.5	4.8
BENZO(G,H,I)PERYLENE	ND	9.5	4.8
BIS(2-CHLOROETHOXY)METHANE	ND	9.5	4.8
BIS(2-CHLOROETHYL)ETHER	ND	9.5	4.8
BIS(2-CHLOROISOPROPYL)ETHER	ND	9.5	4.8
BIS(2-ETHYLHEXYL)PHTHALATE	ND	9.5	4.8
BUTYLBENZYLPHTHALATE	ND	9.5	4.8
CHRYSENE	ND	9.5	4.8
DI-N-BUTYLPHTHALATE	ND	9.5	4.8
DI-N-OCTYLPHTHALATE	ND	9.5	4.8
DIBENZO(A,H)ANTHRACENE	ND	9.5	4.8
DIBENZOFURAN	ND	9.5	4.8
DIETHYLPHTHALATE	ND	10	5.7
DIMETHYLPHTHALATE	ND	10	4.8
FLUORANTHENE	ND	9.5	4.8
FLUORENE	ND	9.5	4.8
HEXACHLOROBENZENE	ND	10	5.7
HEXACHLOROCYCLOPENTADIENE	ND	9.5	4.8
HEXACHLOROETHANE	ND	9.5	4.8
INDENO(1,2,3-CD)PYRENE	ND	9.5	4.8
ISOPHORONE	ND	9.5	4.8
N-NITROSO-DI-N-PROPYLAMINE	ND	9.5	4.8
N-NITROSODIPHENYLAMINE (2)	ND	9.5	4.8
NITROBENZENE	ND	9.5	4.8
PENTACHLOROPHENOL	ND	10	9.5
PHENANTHRENE	ND	10	5.7
PHENOL	ND	9.5	4.8
PYRENE	ND	9.5	4.8
1,1'-BIPHENYL	ND	9.5	4.8
ACETOPHENONE	ND	9.5	4.8
ATRAZINE	ND	10	2.4
BENZALDEHYDE	ND	10	9.5
CAPROLACTAM	ND	9.5	4.8
CARBAZOLE	ND	9.5	4.8

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	76	25-134
2-FLUOROBIPHENYL	67	43-125
2-FLUOROPHENOL	58	25-125
NITROBENZENE-D5	64	32-125
PHENOL-D5	63	25-125
TERPHENYL-D14	89	42-126

RL: Reporting Limit  
(1): Cannot be separated from 3-Methylphenol  
(2): Cannot be separated from Diphenylamine

SW 3520C/8270C  
 SEMI VOLATILE ORGANICS BY GC/MS

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=====
Client       : TETRA TECH FW, INC.      Date Collected: 03/08/05
Project      : MFA, SITE 1, CTO 86     Date Received: 03/09/05
Batch No.    : 05C073                  Date Extracted: 03/10/05 18:00
Sample ID    : 86-S1-102               Date Analyzed: 03/15/05 13:31
Lab Samp ID  : C073-06                 Dilution Factor: .97
Lab File ID  : RCH239                  Matrix         : WATER
Ext Btch ID  : SVC020W                 % Moisture     : NA
Calib. Ref.  : RBH022                  Instrument ID   : T-041
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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.7	4.9
2,4,6-TRICHLOROPHENOL	ND	9.7	4.9
2,4-DICHLOROPHENOL	ND	9.7	4.9
2,4-DIMETHYLPHENOL	ND	9.7	4.9
2,4-DINITROPHENOL	ND	19	9.7
2,4-DINITROTOLUENE	ND	19	9.7
2,6-DINITROTOLUENE	ND	19	5.8
2-CHLORONAPHTHALENE	ND	9.7	4.9
2-CHLOROPHENOL	ND	9.7	4.9
2-METHYLNAPHTHALENE	ND	9.7	4.9
2-METHYLPHENOL	ND	9.7	4.9
2-NITROANILINE	ND	19	5.8
2-NITROPHENOL	ND	9.7	4.9
3,3'-DICHLOROBENZIDINE	ND	9.7	4.9
3-NITROANILINE	ND	9.7	4.9
4,6-DINITRO-2-METHYLPHENOL	ND	19	9.7
4-BROMOPHENYL-PHENYL ETHER	ND	19	6.8
4-CHLORO-3-METHYLPHENOL	ND	9.7	4.9
4-CHLORODANILINE	ND	9.7	4.9
4-CHLOROPHENYL-PHENYL ETHER	ND	9.7	4.9
4-METHYLPHENOL (1)	ND	9.7	4.9
4-NITROANILINE	ND	19	4.9
4-NITROPHENOL	ND	9.7	4.9
ACENAPHTHENE	ND	9.7	4.9
ACENAPHTHYLENE	ND	9.7	4.9
ANTHRACENE	ND	9.7	4.9
BENZO(A)ANTHRACENE	ND	9.7	4.9
BENZO(A)PYRENE	ND	9.7	4.9
BENZO(B)FLUORANTHENE	ND	9.7	4.9
BENZO(K)FLUORANTHENE	ND	9.7	4.9
BENZO(G,H,I)PERYLENE	ND	9.7	4.9
BIS(2-CHLOROETHOXY)METHANE	ND	9.7	4.9
BIS(2-CHLOROETHYL)ETHER	ND	9.7	4.9
BIS(2-CHLOROISOPROPYL)ETHER	ND	19	9.7
BIS(2-ETHYLHEXYL)PHTHALATE	ND	9.7	4.9
BUTYLBENZYLPHTHALATE	ND	9.7	4.9
CHRYSENE	ND	9.7	4.9
D1-N-BUTYLPHTHALATE	ND	9.7	4.9
D1-N-OCTYLPHTHALATE	ND	9.7	4.9
DIBENZO(A,H)ANTHRACENE	ND	9.7	4.9
DIBENZOFURAN	ND	9.7	4.9
DIETHYLPHTHALATE	ND	19	5.8
DIMETHYLPHTHALATE	ND	19	4.9
FLUORANTHENE	ND	9.7	4.9
FLUORENE	ND	19	5.8
HEXACHLOROBENZENE	ND	9.7	4.9
HEXACHLOROCYCLOPENTADIENE	ND	9.7	4.9
HEXACHLOROETHANE	ND	9.7	4.9
INDENO(1,2,3-CD)PYRENE	ND	9.7	4.9
ISOPHORONE	ND	9.7	4.9
N-NITROSO-D1-N-PROPYLAMINE	ND	9.7	4.9
N-NITROSODIPHENYLAMINE (2)	ND	9.7	4.9
NITROBENZENE	ND	9.7	4.9
PENTACHLOROPHENOL	ND	19	9.7
PHENANTHRENE	ND	19	5.8
PHENOL	ND	9.7	4.9
PYRENE	ND	9.7	4.9
1,1'-BIPHENYL	ND	9.7	4.9
ACETOPHENONE	ND	19	2.4
ATRAZINE	ND	9.7	9.7
BENZALDEHYDE	ND	9.7	4.9
CAPROLACTAM	ND	9.7	4.9
CARBAZOLE	ND	9.7	4.9

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	89	25-134
2-FLUOROBIPHENYL	85	43-125
2-FLUOROPHENOL	72	25-125
NITROBENZENE-D5	77	36-125
PHENOL-D5	77	25-125
TERPHENYL-D14	107	42-126

RL: Reporting Limit  
 (1): Cannot be separated from 3-Methylphenol  
 (2): Cannot be separated from Diphenylamine

SW 3520C/8270C  
SEMI VOLATILE ORGANICS BY GC/MS

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=====
Client       : TETRA TECH FW INC.      Date Collected: 03/08/05
Project      : MFA SITE 1, CTO 86     Date Received: 03/09/05
Batch No.    : 05C073                 Date Extracted: 03/10/05 18:00
Sample ID    : 86-S1-103              Date Analyzed: 03/13/05 13:58
Lab Samp ID  : C073-07                Dilution Factor: 94
Lab File ID  : RCH240                 Matrix          : WATER
Ext Btch ID  : SVC020W                % Moisture      : NA
Calib. Ref.  : RBH022                 Instrument ID   : T-041
=====

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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	19	9.4
2,4-DINITROTOLUENE	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	5.6
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	9.4	4.7
2-NITROANILINE	ND	19	5.6
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	9.4	4.7
4,6-DINITRO-2-METHYLPHENOL	ND	19	9.4
4-BROMOPHENYL-PHENYL ETHER	ND	19	9.4
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	9.4	4.7
4-NITROPHENOL	ND	19	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	9.4	4.7
BIS(2-ETHYLHEXYL)PHTHALATE	ND	19	9.4
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
D1-N-BUTYLPHTHALATE	ND	9.4	4.7
D1-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	9.4	4.7
DIMETHYLPHTHALATE	ND	19	5.6
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	9.4	4.7
HEXACHLOROBENZENE	ND	19	5.6
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-D1-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSDIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	9.4	4.7
PENTACHLOROPHENOL	ND	19	9.4
PHENANTHRENE	ND	19	5.6
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	4.7
ACETOPHENONE	ND	9.4	2.3
ATRAZINE	ND	19	9.4
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	83	25-134
2-FLUOROBIPHENYL	66	43-125
2-FLUOROPHENOL	56	25-125
NITROBENZENE-D5	67	32-125
PHENOL-D5	61	25-125
TERPHENYL-D14	94	42-126

RL: Reporting Limit  
(1): Cannot be separated from 3-Methylphenol  
(2): Cannot be separated from Diphenylamine



SW 3520C/8270C  
SEMI VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC.  
Project : MFA, SITE 1, CTO 86  
Batch No. : 05C073  
Sample ID: 86-S1-104  
Lab Samp ID: C073-08  
Lab File ID: RCH241  
Ext. Btch ID: SVCD20W  
Calib. Ref.: RBH022  
Date Collected: 03/08/05  
Date Received: 03/09/05  
Date Extracted: 03/10/05 18:00  
Date Analyzed: 03/15/05 14:26  
Dilution Factor: .94  
Matrix : WATER  
% Moisture : NA  
Instrument ID : I-041

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	9.4	4.7
2,4-DINITROTOLUENE	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	9.4
2-CHLORONAPHTHALENE	ND	9.4	5.6
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	9.4	4.7
2-NITROANILINE	ND	9.4	4.7
2-NITROPHENOL	ND	19	5.6
3,3'-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	9.4	4.7
4,6-DINITRO-2-METHYLPHENOL	ND	9.4	4.7
4-BROMOPHENYL-PHENYL ETHER	ND	19	9.4
4-CHLORO-3-METHYLPHENOL	ND	19	6.6
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENYL-PHENYL ETHER	ND	9.4	4.7
4-NITROANILINE (1)	ND	9.4	4.7
4-NITROPHENOL	ND	9.4	4.7
ACENAPHTHENE	ND	19	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	9.4	4.7
BIS(2-ETHYLHEXYL)PHthalate	ND	9.4	4.7
BUTYLBENZYLPHthalate	ND	19	9.4
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHthalate	ND	9.4	4.7
DI-N-OCTYLPHthalate	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	9.4	4.7
DIMETHYLPHthalate	ND	19	4.7
DIMETHYLPHthalate	ND	19	5.6
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	9.4	4.7
HEXACHLOROBENZENE	ND	9.4	4.7
HEXACHLOROCYClopentadiene	ND	19	4.7
HEXACHLOROETHANE	ND	9.4	5.6
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSODIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	9.4	4.7
PENTACHLOROPHENOL	ND	9.4	4.7
PHENANTHRENE	ND	19	9.4
PHENOL	ND	19	5.6
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	4.7
ACETOPHENONE	ND	9.4	4.7
ATRAZINE	ND	9.4	4.7
BENZALDEHYDE	ND	19	2.3
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7
SURROGATE PARAMETERS			
2,4,6-TRIBROMOPHENOL	73	25-134	
2-FLUOROBIPHENYL	64	43-125	
2-FLUOROPHENOL	55	52-125	
NITROBENZENE-D5	64	52-125	
PHENOL-D5	59	25-125	
TERPHENYL-D14	88	42-126	

RL: Reporting Limit  
(1): Cannot be separated from 3-Methylphenol  
(2): Cannot be separated from Diphenylamine

SW 3520C/8270C  
SEMI VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC.  
Project : MFA, SITE 1, CTO 86  
Batch No. : 05C073  
Sample ID : B6-SI-105  
Lab Samp ID : C073-09  
Lab File ID : RCH242  
Ext Btch ID : SVC020W  
Calib. Ref.: RBH022

Date Collected: 03/08/05  
Date Received: 03/09/05  
Date Extracted: 03/10/05 18:00  
Date Analyzed: 03/15/05 14:54  
Dilution Factor: .94  
Matrix : WATER  
% Moisture : NA  
Instrument ID : T-041

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	9.4	4.7
2,4-DINITROTOLUENE	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	9.4
2-CHLORONAPHTHALENE	ND	19	5.6
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	9.4	4.7
2-NITROANILINE	ND	9.4	4.7
2-NITROPHENOL	ND	19	5.6
3,3'-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	9.4	4.7
4,6-DINITRO-2-METHYLPHENOL	ND	9.4	4.7
4-BROMOPHENYL-PHENYL ETHER	ND	19	9.4
4-CHLORO-3-METHYLPHENOL	ND	19	6.6
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	9.4	4.7
4-NITROPHENOL	ND	9.4	4.7
ACENAPHTHENE	ND	19	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	9.4	4.7
BIS(2-ETHYLHEXYL)PHTHALATE	ND	9.4	4.7
BUTYLBENZYLPHTHALATE	ND	19	9.4
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHTHALATE	ND	9.4	4.7
DI-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	9.4	4.7
DIETHYLPHTHALATE	ND	9.4	4.7
DIMETHYLPHTHALATE	ND	19	5.6
FLUORANTHENE	ND	19	4.7
FLUORENE	ND	9.4	4.7
HEXACHLOROBENZENE	ND	9.4	4.7
HEXACHLOROCYCLOPENTADIENE	ND	19	5.6
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSDIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	9.4	4.7
PENTACHLOROPHENOL	ND	9.4	4.7
PHENANTHRENE	ND	19	9.4
PHENOL	ND	19	5.6
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	4.7
ACETOPHENONE	ND	9.4	4.7
ATRAZINE	ND	9.4	2.3
BENZALDEHYDE	ND	19	9.4
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	92	25-134
2-FLUOROBIPHENYL	73	43-125
2-FLUOROPHENOL	61	25-125
NITROBENZENE-D5	72	32-125
PHENOL-D5	65	25-125
TERPHENYL-D14	102	42-126

RL: Reporting Limit  
(1): Cannot be separated from 3-Methylphenol  
(2): Cannot be separated from Diphenylamine

**CASE NARRATIVE**

**CLIENT:** TETRA TECH FW, INC.  
**PROJECT:** MFA, SITE 1, CTO 86  
**SDG:** 05C073

**METHOD 7470A**  
**DISSOLVED MERCURY BY COLD VAPOR**

Nine (9) water samples were received on 03/09/05 for Dissolved Mercury analysis by Method 7470A in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3<sup>rd</sup> edition.

- 1. Holding Time**  
Analysis met holding time criteria.
- 2. Method Blank**  
Method blank was free of contamination at the reporting limit.
- 3. Lab Control Sample/Lab Control Sample Duplicate**  
Lab control results were within QC limit.
- 4. Serial Dilution / Post-Analytical Spike**  
Sample C073-02 was analyzed for serial dilution and post-analytical spike. All QC requirements were met.
- 5. Matrix Spike/Matrix Spike Duplicate**  
Sample C073-02 was spiked. All recoveries were within QC limit.
- 6. Sample Analysis**  
Samples were analyzed according to the prescribed QC procedures. All criteria were met.  
  
All samples were reported from dilution runs due to matrix interference.

METHOD 7470A  
DISSOLVED MERCURY BY COLD VAPOR

Client : YETRA TECH FM, INC.  
Project : MFA, SITE 1, CTO 86  
Batch No. : 05C073

Matrix : WATER  
Instrument ID : T1047

SAMPLE ID	EMAX SAMPLE ID	RESULTS (ug/L)	DLF	MOIST	RL (ug/L)	MDL (ug/L)	Analysis DATE/TIME	Extraction DATE/TIME	LFID	CAL REF	PREP BATCH	Collection DATE/TIME	Received DATE/TIME
MBLK1W	HGC025WB	ND	1	NA	-2	.1	03/18/0513:36	03/17/0516:00	M47C018010	M47C018008	HGC022W	NA	03/17/05
LCS1W	HGC025WL	5.06	1	NA	.2	.1	03/18/0513:38	03/17/0516:00	M47C018011	M47C018008	HGC022W	NA	03/17/05
LCD1W	HGC025WC	5.02	1	NA	-2	.1	03/18/0513:41	03/17/0516:00	M47C018012	M47C018008	HGC022W	NA	03/17/05
86-S1-098	C073-01	ND	20	NA	4	2	03/18/0515:08	03/17/0516:00	M47C018050	M47C018043	HGC022W	03/07/05	03/09/05
86-S1-100	C073-03	ND	20	NA	4	2	03/18/0515:10	03/17/0516:00	M47C018051	M47C018043	HGC022W	03/07/05	03/09/05
86-S1-102	C073-06	ND	20	NA	4	2	03/18/0515:13	03/17/0516:00	M47C018052	M47C018043	HGC022W	03/07/05	03/09/05
86-S1-103	C073-07	ND	20	NA	4	2	03/18/0515:18	03/17/0516:00	M47C018054	M47C018055	HGC022W	03/08/05	03/09/05
86-S1-104	C073-08	ND	20	NA	4	2	03/18/0515:24	03/17/0516:00	M47C018057	M47C018055	HGC022W	03/08/05	03/09/05
86-S1-105	C073-09	ND	20	NA	4	2	03/18/0515:27	03/17/0516:00	M47C018058	M47C018055	HGC022W	03/08/05	03/09/05
MBLK2W	HGC025WB	ND	1	NA	-2	.1	03/21/0515:19	03/21/0509:30	M47C020011	M47C020009	HGC025W	NA	03/21/05
LCS2W	HGC025WL	5.14	1	NA	.2	.1	03/21/0515:21	03/21/0509:30	M47C020012	M47C020009	HGC025W	NA	03/21/05
LCD2W	HGC025WC	5.13	1	NA	-2	.1	03/21/0515:23	03/21/0509:30	M47C020013	M47C020021	HGC025W	03/07/05	03/09/05
86-S1-097AS	C073-02A	35.4	20	NA	4	2	03/21/0515:53	03/21/0509:30	M47C020026	M47C020021	HGC025W	03/07/05	03/09/05
86-S1-097	C073-02	ND	20	NA	4	2	03/21/0515:55	03/21/0509:30	M47C020027	M47C020021	HGC025W	03/07/05	03/09/05
86-S1-097DL	C073-02T	ND	100	NA	20	10	03/21/0515:58	03/21/0509:30	M47C020028	M47C020021	HGC025W	03/07/05	03/09/05
86-S1-097RS	C073-02M	4.06	20	NA	4	2	03/21/0516:00	03/21/0509:30	M47C020029	M47C020021	HGC025W	03/07/05	03/09/05
86-S1-097MSD	C073-02S	4.08	20	NA	4	2	03/21/0516:02	03/21/0509:30	M47C020030	M47C020021	HGC025W	03/07/05	03/09/05
86-S1-101	C073-05	ND	20	NA	4	2	03/21/0516:04	03/21/0509:30	M47C020031	M47C020021	HGC025W	03/07/05	03/09/05

RL: Reporting Limit

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Airfield, MFA Site 1, CTO 86  
**Collection Date:** March 7 through March 8, 2005  
**LDC Report Date:** April 14, 2005  
**Matrix:** Water  
**Parameters:** Semivolatiles  
**Validation Level:** EPA Level III & IV  
**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 05C073

**Sample Identification**

86-S1-096  
86-S1-097  
86-S1-098  
86-S1-100  
86-S1-101  
86-S1-102  
86-S1-103  
86-S1-104\*\*  
86-S1-105  
86-S1-097MS  
86-S1-097MSD

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 11 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270C for Semivolatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## **III. Initial Calibration**

Initial calibration was performed using required standard concentrations.

The mean percent relative standard deviation (%RSD) for all compounds was less than or equal to 15.0% and less than or equal to 30.0% for selected individual compounds.

A curve fit, based on the initial calibration, was established for quantitation for selected compounds. The coefficient of determination ( $r^2$ ) was greater than or equal to 0.990 .

Average relative response factors (RRF) for all system performance check compounds (SPCCs) were within method criteria.

## **IV. Continuing Calibration**

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 20.0% for all compounds.

Initial calibration verification (ICV) percent differences (%D) were less than or equal to 20.0% for all compounds.

All of the continuing calibration RRF values for all system performance check compounds (SPCCs) were within method criteria.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No semivolatile contaminants were found in the method blanks.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## IX. Regional Quality Assurance and Quality Control

Not applicable.

## X. Internal Standards

All internal standard areas and retention times were within QC limits with the following exceptions:

Sample	Internal Standards	Area (Limits)	Compound	Flag	A or P
06-G1-102	Chrysene-d12	477919 (579220-2316882)	Pyrene Butylbenzylphthalate 3,3'-Dichlorobenzidine Benzo(a)anthracene Chrysene Bis(2-ethylhexyl)phthalate	J (all detects) UJ (all non-detects)	P

## XI. Target Compound Identifications

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.



#### **XIV. System Performance**

The system performance was within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

#### **XV. Overall Assessment**

Data flags have been summarized at the end of the report.

#### **XVI. Field Duplicates**

Samples 86-S1-103 and 86-S1-104\*\* were identified as field duplicates. No volatiles were detected in any of the samples.

#### **XVII. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Airfield, MFA Site 1, CTO 86**  
**Semivolatiles - Data Qualification Summary - SDG 05C073**

SDG	Sample	Compound	Flag	A or P	Reason
05C073	86-S1-102	Pyrene Butylbenzylphthalate 3,3'-Dichlorobenzidine Benzo(a)anthracene Chrysene Bis(2-ethylhexyl)phthalate	J (all detects) UJ (all non-detects)	P	Internal standards (area)

**Moffett Airfield, MFA Site 1, CTO 86**  
**Semivolatiles - Laboratory Blank Data Qualification Summary - SDG 05C073**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Airfield, MFA Site 1, CTO 86  
**Collection Date:** March 7 through March 8, 2005  
**LDC Report Date:** April 11, 2005  
**Matrix:** Water  
**Parameters:** Dissolved Mercury  
**Validation Level:** EPA Level III & IV  
**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 05C073

**Sample Identification**

86-S1-096  
86-S1-097  
86-S1-098  
86-S1-100  
86-S1-101  
86-S1-102  
86-S1-103  
86-S1-104\*\*  
86-S1-105  
86-S1-097MS  
86-S1-097MSD

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 11 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 7470A for Dissolved Mercury.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the method stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Calibration**

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

## **III. Blanks**

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. No contaminant concentrations were found in the initial, continuing and preparation blanks.

## **IV. ICP Interference Check Sample (ICS) Analysis**

ICP interference check sample analysis is not required by the method.

## **V. Matrix Spike Analysis**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VI. Duplicate Sample Analysis**

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

## **VII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Internal Standards**

ICP-MS was not utilized in this SDG.



NUMBER 103202

# CHAIN-OF-CUSTODY RECORD

[illegible]

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management

2016915-12



1835 W. 205th Street  
Torrance, CA 90501  
Tel: (310) 618-8889  
Fax: (310) 618-0818

Date: 03-29-2005  
EMAX Batch No.: 05C081

Attn: Lynn Jefferson

Tetra Tech FW, Inc.  
1940 E Deere Ave, Suite 200  
Santa Ana CA 92705

Subject: Laboratory Report  
Project: MFA, Site 1, CTD 86

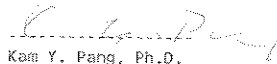
Enclosed is the Laboratory report for samples received on  
03/10/05. The data reported include :

Sample ID	Control #	Col Date	Matrix	Analysis
86-S1-106	C081-01	03/08/05	WATER	MERCURY DISSOLVED SEMIVOLATILE ORGANICS BY GCMS
86-S1-107	C081-02	03/08/05	WATER	MERCURY DISSOLVED SEMIVOLATILE ORGANICS BY GCMS

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning  
these results.

Sincerely yours,

  
Kam Y. Pang, Ph.D.  
Laboratory Director

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**CASE NARRATIVE**

**CLIENT:** TETRA TECH FW, INC.  
**PROJECT:** MFA, SITE 1, CTO 86  
**SDG:** 05C081

**SW 3520C/8270C  
SEMI VOLATILE ORGANICS BY GC/MS**

Two (2) water samples were received on 03/10/05 for Semi Volatile Organic analysis by Method 3520C/8270C in accordance with USEPA SW846, 3<sup>rd</sup> ed.

**1. Holding Time**

Analytical holding time was met.

**2. Tuning and Calibration**

Tuning and calibration were carried out at 12-hour interval. All QC requirements were met.

**3. Method Blank**

Method blank was free of contamination at the reporting limit.

**4. Surrogate Recovery**

Recoveries were within QC limit.

**5. Lab Control Sample/Lab Control Sample Duplicate**

Recoveries were within QC limit.

**6. Matrix Spike/Matrix Spike Duplicate**

No MS/MSD sample was designated in this SDG.

**7. Sample Analysis**

Samples were analyzed according to the prescribed QC procedures. All criteria were met.



SW 3520C/8270C  
 SEMI VOLATILE ORGANICS BY GC/MS

```

=====
Client       : TETRA TECH FW, INC.      Date Collected: 03/08/05
Project      : MFA, SITE 1, CTO 86     Date Received: 03/10/05
Batch No.    : 05C081                  Date Extracted: 03/10/05 18:00
Sample ID    : 08-S1-106               Date Analyzed: 03/15/05 15:21
Lab Samp ID  : C081-01                  Dilution Factor: 94
Lab File ID  : RCH243                   Matrix: WATER
Ext Btch ID  : SVC020W                  % Moisture: NA
Calib. Ref.  : RBH022                   Instrument ID : T-041
=====
  
```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	19	9.4
2,4-DINITROTOLUENE	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	5.6
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	9.4	4.7
2-NITROANILINE	ND	19	5.6
2-NITROPHENOL	ND	9.4	4.7
3,5-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	9.4	4.7
4,6-DINITRO-2-METHYLPHENOL	ND	19	9.4
4-BROMOPHENYL-PHENYL ETHER	ND	19	6.6
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	9.4	4.7
4-NITROPHENOL	ND	19	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	9.4	4.7
BIS(2-ETHYLHEXYL)PHthalate	ND	19	9.4
BUTYLBENZYLPHthalate	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHthalate	ND	9.4	4.7
DI-N-OCTYLPHthalate	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	9.4	4.7
DIETHYLPHthalate	ND	19	5.6
DIMETHYLPHthalate	ND	19	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	9.4	4.7
HEXACHLOROBENZENE	ND	19	5.6
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSDIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	9.4	4.7
PENTACHLOROPHENOL	ND	19	9.4
PHENANTHRENE	ND	19	5.6
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	4.7
ACETOPHENONE	ND	9.4	2.3
ATRAZINE	ND	19	9.4
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	87	25-134
2-FLUOROBIPHENYL	73	43-125
2-FLUOROPHENOL	62	25-125
NITROBENZENE-D5	68	32-125
PHENOL-D5	67	25-125
TERPHENYL-D14	99	42-126

RL: Reporting Limit  
 (1): Cannot be separated from 3-Methylphenol  
 (2): Cannot be separated from Diphenylamine

SW 3520C/8270C  
 SEMI VOLATILE ORGANICS BY GC/MS

```

=====
Client       : TETRA TECH FW, INC.      Date Collected: 03/08/05
Project      : MFA SITE 1, CTO 86      Date Received: 03/10/05
Batch No.    : 05C081                  Date Extracted: 03/10/05 18:00
Sample ID    : 86-S1-107               Date Analyzed: 03/15/05 15:49
Lab Smp ID   : C081-02                  Dilution Factor: .94
Lab File ID  : RCH244                   Matrix          : WATER
Ext Btch ID  : SVC020W                   % Moisture      : NA
Calib. Ref.  : RBH022                   Instrument ID    : T-041
=====
  
```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	19	9.4
2,4-DINITROTOLUENE	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	5.6
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	19	5.6
2-NITROANILINE	ND	9.4	4.7
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	19	9.4
4,6-DINITRO-2-METHYLPHENOL	ND	19	6.6
4-BROMOPHENYL-PHENYL ETHER	ND	9.4	4.7
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	19	4.7
4-NITROPHENOL	ND	9.4	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	19	9.4
BIS(2-ETHYLHEXYL)PHTHALATE	ND	9.4	4.7
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
D1-N-BUTYLPHTHALATE	ND	9.4	4.7
D1-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	9.4	4.7
DIETHYLPHTHALATE	ND	19	5.6
DIMETHYLPHTHALATE	ND	19	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	19	5.6
HEXACHLOROBENZENE	ND	9.4	4.7
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORAENE	ND	9.4	4.7
N-NITROSO-D1-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSDIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	9.4	4.7
PENTACHLOROPHENOL	ND	19	9.4
PHENANTHRENE	ND	19	5.6
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	4.7
ACETOPHENONE	ND	19	9.4
ATRAZINE	ND	9.4	4.7
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	91	25-134
2-FLUOROBIPHENYL	78	43-125
2-FLUOROPHENOL	61	25-125
NITROBENZENE-D5	69	25-125
PHENOL-D5	69	25-125
TERPHENYL-D14	104	42-126

RL: Reporting Limit  
 (1): Cannot be separated from 3-Methylphenol  
 (2): Cannot be separated from Diphenylamine

**CASE NARRATIVE**

**CLIENT:** TETRA TECH FW, INC.  
**PROJECT:** MFA, SITE 1, CTO 86  
**SDG:** 05C081

**METHOD 7470A**  
**DISSOLVED MERCURY BY COLD VAPOR**

Two (2) water samples were received on 03/10/05 for Dissolved Mercury analysis by Method 7470A in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3<sup>rd</sup> edition.

**1. Holding Time**

Analysis met holding time criteria.

**2. Method Blank**

Method blank was free of contamination at the reporting limit.

**3. Lab Control Sample/Lab Control Sample Duplicate**

Lab control results were within QC limit.

**4. Serial Dilution / Post-Analytical Spike**

Sample C073-02 from another SDG was analyzed for serial dilution and post-analytical spike. All QC requirements were met.

**5. Matrix Spike/Matrix Spike Duplicate**

No MS/MSD sample was designated in this SDG.

**6. Sample Analysis**

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

Samples were reported from dilution runs due to matrix interference.

METHOD 7470A  
DISSOLVED MERCURY BY COLD VAPOR

Client : TETRA TECH FW, INC.  
Project : MPA, SITE 1, CIO 86  
Batch No. : 05C081

Matrix : WATER  
Instrument ID : T1047

SAMPLE ID	EMAX SAMPLE ID	RESULTS (ug/L)	DLF	MOIST	RL (ug/L)	MDL (ug/L)	Analysis DATE/TIME	Extraction DATE/TIME	LFID	CAL REF	PREP BATCH	Collection DATE/TIME	Received DATE/TIME
MELK1W	HGC025WB	ND	1	NA	.2	.1	03/21/0515:19	03/21/0509:30	M47C020011	M47C020009	HGC025W	NA	03/21/05
LCS1W	HGC025WL	5.14	1	NA	.2	.1	03/21/0515:21	03/21/0509:30	M47C020012	M47C020009	HGC025W	NA	03/21/05
LCD1W	HGC025WC	5.13	1	NA	.2	.1	03/21/0515:23	03/21/0509:30	M47C020013	M47C020009	HGC025W	NA	03/21/05
86-S1-107	C081-02	ND	20	NA	4	2	03/21/0516:13	03/21/0509:30	M47C020035	M47C020032	HGC025W	03/08/05	03/10/05
86-S1-106	C081-01	ND	20	NA	4	2	03/21/0516:26	03/21/0509:30	M47C020038	M47C020036	HGC025W	03/08/05	03/10/05

RL: Reporting Limit

7003

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Airfield, MFA Site 1, CTO 86  
**Collection Date:** March 8, 2005  
**LDC Report Date:** April 14, 2005  
**Matrix:** Water  
**Parameters:** Semivolatiles  
**Validation Level:** EPA Level III & IV  
**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 05C081

**Sample Identification**

86-S1-106\*\*  
86-S1-107

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270C for Semivolatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

### **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

### **II. GC/MS Instrument Performance Check**

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

### **III. Initial Calibration**

Initial calibration was performed using required standard concentrations.

The mean percent relative standard deviation (%RSD) for all compounds was less than or equal to 15.0% and less than or equal to 30.0% for selected individual compounds.

A curve fit, based on the initial calibration, was established for quantitation for selected compounds. The coefficient of determination ( $r^2$ ) was greater than or equal to 0.990 .

Average relative response factors (RRF) for all system performance check compounds (SPCCs) were within method criteria.

### **IV. Continuing Calibration**

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 20.0% for all compounds.

Initial calibration verification (ICV) percent differences (%D) were less than or equal to 20.0% for all compounds.

All of the continuing calibration RRF values for all system performance check compounds (SPCCs) were within method criteria.

### **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No semivolatile contaminants were found in the method blanks.

### **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

All internal standard areas and retention times were within QC limits.

## **XI. Target Compound Identifications**

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XII. Compound Quantitation and CRQLs**

All compound quantitation and CRQLs were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XIII. Tentatively Identified Compounds (TICs)**

Tentatively identified compounds were not reported by the laboratory.

## **XIV. System Performance**

The system performance was within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XV. Overall Assessment**

Data flags have been summarized at the end of the report.

## **XVI. Field Duplicates**

No field duplicates were identified in this SDG.



## **XVII. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Airfield, MFA Site 1, CTO 86**  
**Semivolatiles - Data Qualification Summary - SDG 05C081**

No Sample Data Qualified in this SDG

**Moffett Airfield, MFA Site 1, CTO 86**  
**Semivolatiles - Laboratory Blank Data Qualification Summary - SDG 05C081**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Airfield, MFA Site 1, CTO 86  
**Collection Date:** March 8, 2005  
**LDC Report Date:** April 11, 2005  
**Matrix:** Water  
**Parameters:** Dissolved Mercury  
**Validation Level:** EPA Level III & IV  
**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 05C081

**Sample Identification**

86-S1-106\*\*  
86-S1-107

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 7470A for Dissolved Mercury.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the method stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Calibration**

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

## **III. Blanks**

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. No contaminant concentrations were found in the initial, continuing and preparation blanks.

## **IV. ICP Interference Check Sample (ICS) Analysis**

ICP interference check sample analysis is not required by the method.

## **V. Matrix Spike Analysis**

The laboratory has indicated that there were no matrix spike (MS) analyses specified for the samples in this SDG, and therefore matrix spike analyses were not performed for this SDG.

## **VI. Duplicate Sample Analysis**

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

## **VII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Internal Standards**

ICP-MS was not utilized in this SDG.

#### **IX. Furnace Atomic Absorption QC**

Graphite furnace atomic absorption was not utilized in this SDG.

#### **X. ICP Serial Dilution**

ICP serial dilution was not required by the method.

#### **XI. Sample Result Verification**

All sample result verifications met validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

#### **XII. Overall Assessment of Data**

Data flags have been summarized at the end of this report.

#### **XIII. Field Duplicates**

No field duplicates were identified in this SDG.

#### **XIV. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Airfield, MFA Site 1, CTO 86**  
**Dissolved Mercury - Data Qualification Summary - SDG 05C081**

No Sample Data Qualified in this SDG

**Moffett Airfield, MFA Site 1, CTO 86**  
**Dissolved Mercury - Laboratory Blank Data Qualification Summary - SDG 05C081**

No Sample Data Qualified in this SDG



TETRA TECH

1230 Columbia Street, Suite 500  
San Diego, CA 92101 (619) 734-8696

# CHAIN-OF-CUSTODY RECORD

NUMBER 10358

PROJECT NAME YOFFETT- SITE 1		PURCHASE ORDER NO. 20848 TASK 28		ANALYSES REQUIRED		LABORATORY NAME EMAX		Project Information Section Do not submit to Laboratory								
PROJECT LOCATION YOFFETT FIELD, CA		PROJECT NO. 1990.086E		EPA 8210B (EXTRACTED) (LIST)		LABORATORY ID (FOR LABORATORY) 05D061										
AMPLIFIER NAME Bill Ogilz		AIRBILL NUMBER 850458348392		EPA 8210A (EXTRACTED) (LIST)												
PROJECT CONTACT YUN JEFFERSON		PROJECT CONTACT PHONE NUMBER (949) 756-7557		EPA 8082 (MERCU) (LIST)		COMMENTS Run MS/MSD										
SAMPLE ID		DATE COLLECTED	TIME COLLECTED	NO. OF CONTAINER	LEVEL	T	V	P	E	T	A	T	LOCATION	DEPTH START	DEPTH END	QC
86-SI-122	4-11-05	1300	3	X	W	10	DAY						TRP BLANK	-	-	RG
86-SI-110	4-11-05	1330	33	X	W	10	DAY						W1-19	-	-	RG
86-SI-112	4-11-05	1530	11	X	W	10	DAY						W1-14	-	-	RG
86-SI-113	4-12-05	0900	11	X	W	10	DAY						W1-12R	-	-	RG
86-SI-114	4-12-05	0930	11	X	W	10	DAY						W1-12R	-	-	RG
86-SI-115	4-12-05	1015	11	X	W	10	DAY						W1-22	-	-	RG
LABORATORY INSTRUCTIONS/COMMENTS METALS & MERCURY ARE FIELD FILTERED																
ELINQUISHED BY (Signature)		DATE 4-12-05	RECEIVED BY (Signature)		LABORATORY INSTRUCTIONS/COMMENTS											
COMPANY Tetra Tech		TIME 1400	COMPANY Tetra Tech		COMPOSITE DESCRIPTION											
ELINQUISHED BY (Signature)		DATE	RECEIVED BY (Signature)		SAMPLE CONDITION UPON RECEIPT (FOR LABORATORY)											
COMPANY		TIME	COMPANY		TEMPERATURE: <input type="checkbox"/> INTACT <input type="checkbox"/> BROKEN											
ELINQUISHED BY (Signature)		DATE	RECEIVED BY (Signature)		COOLER SEAL: <input type="checkbox"/> INTACT <input type="checkbox"/> BROKEN											
COMPANY		TIME	COMPANY		SAMPLING COMMENT: SITE 1 SEMI-ANNUAL 2005											





**LABORATORIES, INC.**

1835 W. 205th Street  
Torrance, CA 90501  
Tel: (310) 618-8889  
Fax: (310) 618-0818

Date: 05-09-2005  
EMAX Batch No.: 050061

Attn: Lynn Jefferson

Tetra Tech FW, Inc.  
1940 E Deere Ave, Suite 200  
Santa Ana CA 92705

Subject: Laboratory Report  
Project: MFA, Site 1, CTO 86

Enclosed is the Laboratory report for samples received on  
04/13/05. The data reported include :

Sample ID	Control #	Col Date	Matrix	Analysis
86-S1-122	D061-01	04/11/05	WATER	VOLATILE ORGANICS BY GC/MS
86-S1-110	D061-02	04/11/05	WATER	VOLATILE ORGANICS BY GC/MS
				PESTICIDES ORGANOCHLORINE
				POLYCHLORINATED BIPHENYLS (PCBS)
				MERCURY DISSOLVED
				MT2008DW
86-S1-112	D061-03	04/11/05	WATER	SEMIVOLATILE ORGANICS BY GC/MS
				VOLATILE ORGANICS BY GC/MS
				PESTICIDES ORGANOCHLORINE
				POLYCHLORINATED BIPHENYLS (PCBS)
				MERCURY DISSOLVED
				MT2008DW
86-S1-113	D061-04	04/12/05	WATER	SEMIVOLATILE ORGANICS BY GC/MS
				VOLATILE ORGANICS BY GC/MS
				PESTICIDES ORGANOCHLORINE
				POLYCHLORINATED BIPHENYLS (PCBS)
				MERCURY DISSOLVED
				MT2008DW
				SEMIVOLATILE ORGANICS BY GC/MS

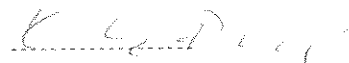
Sample ID	Control #	Col Date	Matrix	Analysis
86-S1-114	0061-05	04/12/05	WATER	VOLATILE ORGANICS BY GC/MS PESTICIDES ORGANOCHLORINE POLYCHLORINATED BIPHENYLS (PCBS) MERCURY DISSOLVED MT2008DW
86-S1-115	0061-06	04/12/05	WATER	SEMIVOLATILE ORGANICS BY GCMS VOLATILE ORGANICS BY GC/MS PESTICIDES ORGANOCHLORINE POLYCHLORINATED BIPHENYLS (PCBS) MERCURY DISSOLVED MT2008DW
86-S1-110MS	0061-02M	04/11/05	WATER	SEMIVOLATILE ORGANICS BY GCMS VOLATILE ORGANICS BY GC/MS PESTICIDES ORGANOCHLORINE POLYCHLORINATED BIPHENYLS (PCBS) MERCURY DISSOLVED MT2008DW
86-S1-110MSD	0061-02S	04/11/05	WATER	SEMIVOLATILE ORGANICS BY GCMS VOLATILE ORGANICS BY GC/MS PESTICIDES ORGANOCHLORINE POLYCHLORINATED BIPHENYLS (PCBS) MERCURY DISSOLVED MT2008DW SEMIVOLATILE ORGANICS BY GCMS

Note: Results for Dissolved Metals which were subcontracted to Columbia Analytical Services, Inc. may be found in SDG 05D053.

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,



Kam Y. Pang, Ph.D.  
Laboratory Director

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**CASE NARRATIVE**

**CLIENT:** TETRA TECH FW, INC.  
**PROJECT:** MFA, SITE 1, CTO 86  
**SDG:** 05D061

**SW 5030B/8260B  
VOLATILE ORGANICS BY GC/MS**

Six (6) water samples were received on 04/13/05 for Volatile Organic analysis by Method 5030B/8260B in accordance with USEPA SW846, 3<sup>rd</sup> ed.

**1. Holding Time**

Analytical holding time was met.

**2. Tuning and Calibration**

Tuning and calibration were carried out at 12-hour interval. All QC requirements were met.

**3. Method Blank**

Method blanks were free of contamination at the reporting limit.

**4. Surrogate Recovery**

Recoveries were within QC limit except Toluene-d8 in LCS1W but recovery of target analyte met QC criteria.

**5. Lab Control Sample/Lab Control Sample Duplicate**

Recoveries were within QC limit.

**6. Matrix Spike/Matrix Spike Duplicate**

Sample D061-02 was spiked. All recoveries were within QC limit.

**7. Sample Analysis**

Samples were analyzed according to the prescribed QC procedures. All criteria were met with the aforementioned exception.

SW 50308/82608  
VOLATILE ORGANICS BY GC/MS

```
=====
Client       : TETRA TECH FW, INC.      Date Collected: 04/11/05
Project      : MFA, SITE 1, CTO 86     Date Received: 04/13/05
Batch No.    : 05D061                  Date Extracted: 04/16/05 01:18
Sample ID    : 86-S1-122                Date Analyzed: 04/16/05 01:18
Lab Samp ID  : D061-01R                 Dilution Factor: 1
Lab File ID  : RDP174                   Matrix          : WATER
Ext Btch ID  : V002D13                  % Moisture      : NA
Calib. Ref.  : RDP025                   Instrument ID   : T-002
=====
```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	.5	.5
1,1,1-TRICHLOROETHANE	ND	.5	.5
1,1,2,2-TETRACHLOROETHANE	ND	.5	.5
1,1,2-TRICHLOROETHANE	ND	.5	.5
1,1-DICHLOROETHANE	ND	.5	.5
1,1-DICHLOROETHENE	ND	.5	.5
1,1-DICHLOROPROPENE	ND	.5	.5
1,2,3-TRICHLOROBENZENE	ND	.5	.5
1,2,3-TRICHLOROPROPANE	ND	.5	.5
1,2,4-TRICHLOROBENZENE	ND	.5	.5
1,2,4-TRIMETHYLBENZENE	ND	.5	.5
1,2-DIBROMO-3-CHLOROPROPANE	ND	.5	.5
1,2-DICHLOROBENZENE	ND	.5	.5
1,2-DICHLOROETHANE	ND	.5	.5
1,2-DICHLOROPROPANE	ND	.5	.5
1,3,5-TRIMETHYLBENZENE	ND	.5	.5
1,3-DICHLOROBENZENE	ND	.5	.5
1,3-DICHLOROPROPANE	ND	.5	.5
1,4-DICHLOROBENZENE	ND	.5	.5
2,2-DICHLOROPROPANE	ND	.5	.5
2-BUTANONE	ND	10	.5
2-CHLOROTOLUENE	ND	.5	.5
2-HEXANONE	ND	10	.5
4-CHLOROTOLUENE	ND	.5	.5
4-METHYL-2-PENTANONE	ND	10	.5
ACETONE	ND	10	.5
BENZENE	ND	.5	.5
BROMOBENZENE	ND	.5	.5
BROMOCHLOROMETHANE	ND	.5	.5
BROMODICHLOROMETHANE	ND	.5	.5
BROMOFORM	ND	.5	.5
BROMOMETHANE	ND	.5	.5
CARBON DISULFIDE	ND	.5	.5
CARBON TETRACHLORIDE	ND	.5	.5
CHLOROBENZENE	ND	.5	.5
CHLOROETHANE	ND	.5	.5
CHLOROFORM	ND	.5	.5
CHLOROMETHANE	ND	.5	.5
CIS-1,2-DICHLOROETHENE	ND	.5	.5
CIS-1,3-DICHLOROPROPENE	ND	.5	.5
DIBROMOCHLOROMETHANE	ND	.5	.5
DIBROMOMETHANE	ND	.5	.5
DICHLORODIFLUOROMETHANE	ND	.5	.5
ETHYLBENZENE	ND	.5	.5
HEXACHLOROBUTADIENE	ND	.5	.5
ISOPROPYL BENZENE	ND	.5	.5
M/P-XYLENES	ND	.5	.5
METHYLENE CHLORIDE	ND	.5	.5
N-BUTYLBENZENE	ND	.5	.5
N-PROPYLBENZENE	ND	.5	.5
NAPHTHALENE	ND	.5	.5
O-XYLENE	ND	.5	.5
P-ISOPROPYLTOLUENE	ND	.5	.5
SEC-BUTYLBENZENE	ND	.5	.5
STYRENE	ND	.5	.5
TERT-BUTYLBENZENE	ND	.5	.5
TETRACHLOROETHYLENE	ND	.5	.5
TOLUENE	ND	.5	.5
TRANS-1,2-DICHLOROETHENE	ND	.5	.5
TRANS-1,3-DICHLOROPROPENE	ND	.5	.5
TRICHLOROETHENE	ND	.5	.5
TRICHLOROFLUOROMETHANE	ND	.5	.5
VINYL CHLORIDE	ND	1	.5

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-04	110	62-139
TOLUENE-D8	115	75-125
BROMOFLUOROBENZENE	108	75-125

R.L. : Reporting limit  
 \* : Out of QC  
 E : Exceeded calibration range  
 B : Found in associated method blank  
 J : Value between R.L. and MDL  
 D : Value from dilution analysis  
 D.O. : Diluted out

SW 50308/82608  
VOLATILE ORGANICS BY GC/MS

```

=====
Client       : TETRA TECH FW, INC.      Date Collected: 04/11/05
Project      : MFA, SITE 1, CTO 86     Date Received: 04/13/05
Batch No.    : 050061                  Date Extracted: 04/16/05 01:56
Sample ID    : 86-S1-110               Date Analyzed: 04/16/05 01:56
Lab Samp ID  : D061-02R                Dilution Factor: 1
Lab File ID  : RDP175                  Matrix       : WATER
Ext Btch ID  : V002013                 % Moisture    : NA
Calib. Ref.  : RDP025                  Instrument ID : T-002
=====

```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	0.5	0.3
1,1,1-TRICHLOROETHANE	ND	0.5	0.3
1,1,2,2-TETRACHLOROETHANE	ND	0.5	0.3
1,1,2-TRICHLOROETHANE	ND	0.5	0.3
1,1-DICHLOROETHANE	ND	0.5	0.3
1,1-DICHLOROETHENE	ND	0.5	0.3
1,1-DICHLOROPROPENE	ND	0.5	0.3
1,2,3-TRICHLOROBENZENE	ND	0.5	0.3
1,2,3-TRICHLOROPROPANE	ND	0.5	0.3
1,2,4-TRICHLOROBENZENE	ND	0.5	0.3
1,2,4-TRIMETHYLBENZENE	ND	0.5	0.3
1,2-DIBROMO-3-CHLOROPROPANE	ND	0.5	0.3
1,2-DICHLOROBENZENE	ND	0.5	0.3
1,2-DICHLOROETHANE	ND	0.5	0.3
1,2-DICHLOROPROPANE	ND	0.5	0.3
1,3,5-TRIMETHYLBENZENE	ND	0.5	0.3
1,3-DICHLOROBENZENE	ND	0.5	0.3
1,3-DICHLOROPROPANE	ND	0.5	0.3
1,4-DICHLOROBENZENE	ND	0.5	0.3
2,2-DICHLOROPROPANE	ND	0.5	0.3
2-BUTANONE	ND	1.0	0.5
2-CHLOROTOLUENE	ND	0.5	0.3
2-HEXANONE	ND	0.5	0.3
4-CHLOROTOLUENE	ND	0.5	0.3
4-METHYL-2-PENTANONE	ND	0.5	0.3
ACETONE	ND	0.5	0.3
BENZENE	ND	0.5	0.3
BROMOBENZENE	ND	0.5	0.3
BROMOCHLOROMETHANE	ND	0.5	0.3
BROMODICHLOROMETHANE	ND	0.5	0.3
BROMOFORM	ND	0.5	0.3
BROMOMETHANE	ND	0.5	0.3
CARBON DISULFIDE	ND	0.5	0.3
CARBON TETRACHLORIDE	ND	0.5	0.3
CHLOROETHANE	ND	0.5	0.3
CHLOROETHENE	ND	0.5	0.3
CHLOROFORM	ND	0.5	0.3
CHLOROMETHANE	ND	0.5	0.3
CIS-1,2-DICHLOROETHENE	ND	0.5	0.3
CIS-1,3-DICHLOROPROPENE	ND	0.5	0.3
DIBROMOCHLOROMETHANE	ND	0.5	0.3
DIBROMOMETHANE	ND	0.5	0.3
DICHLORODIFLUOROMETHANE	ND	0.5	0.3
ETHYLBENZENE	ND	0.5	0.3
HEXACHLOROBUTADIENE	ND	0.5	0.3
ISOPROPYL BENZENE	ND	0.5	0.3
M/P-XYLENES	ND	0.5	0.3
METHYLENE CHLORIDE	ND	0.5	0.3
N-BUTYLBENZENE	ND	0.5	0.3
N-PROPYLBENZENE	ND	0.5	0.3
NAPHTHALENE	ND	0.5	0.3
O-XYLENE	ND	0.5	0.3
P-ISOPROPYLTOLUENE	ND	0.5	0.3
SEC-BUTYLBENZENE	ND	0.5	0.3
STYRENE	ND	0.5	0.3
TERT-BUTYLBENZENE	ND	0.5	0.3
TETRACHLOROETHYLENE	ND	0.5	0.3
TOLUENE	ND	0.5	0.3
TRANS-1,2-DICHLOROETHENE	ND	0.5	0.3
TRANS-1,3-DICHLOROPROPENE	ND	0.5	0.3
TRICHLOROETHENE	ND	0.5	0.3
TRICHLOROFLUOROMETHANE	ND	0.5	0.3
VINYL CHLORIDE	ND	0.5	0.3
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
1,2-DICHLOROETHANE-D4	120	62-139	
TOLUENE-D8	108	75-125	
BROMOFLUOROBENZENE	97	75-125	

N.L. : Reporting limit  
 \* : Out of QC  
 E : Exceeded calibration range  
 B : Found in associated method blank  
 J : Value between R.L. and MDL  
 D : Value from dilution analysis  
 D.O. : Diluted out

SW 50308/82608  
VOLATILE ORGANICS BY GC/MS

```
=====
Client   : TETRA TECH FW, INC.      Date Collected: 04/11/05
Project  : MFA, SITE 1, CTO 86      Date Received: 04/13/05
Batch No.: 05D061                  Date Extracted: 04/16/05 02:35
Sample ID: 86-S1-112               Date Analyzed: 04/16/05 02:35
Lab Samp ID: D061-03R              Dilution Factor: 1
Lab File ID: RDP176                 Matrix: WATER
Ext Btch ID: V002D13               % Moisture: NA
Calib. Ref.: RDP025                 Instrument ID: T-002
=====
```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	.5	.2
1,1,1-TRICHLOROETHANE	ND	.5	.2
1,1,2,2-TETRACHLOROETHANE	ND	1	.3
1,1,2-TRICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHENE	ND	.5	.2
1,1-DICHLOROPROPENE	ND	.5	.2
1,2,3-TRICHLOROBENZENE	ND	.5	.2
1,2,3-TRICHLOROPROPANE	ND	.5	.2
1,2,4-TRICHLOROBENZENE	ND	.5	.2
1,2,4-TRIMETHYLBENZENE	ND	.5	.2
1,2-DIBROMO-3-CHLOROPROPANE	ND	.5	.2
1,2-DICHLOROBENZENE	ND	.5	.2
1,2-DICHLOROETHANE	ND	.5	.2
1,2-DICHLOROPROPANE	ND	.5	.2
1,3,5-TRIMETHYLBENZENE	ND	.5	.2
1,3-DICHLOROBENZENE	ND	.5	.2
1,3-DICHLOROPROPANE	ND	.5	.2
1,4-DICHLOROBENZENE	ND	.5	.2
2,2-DICHLOROPROPANE	ND	.5	.2
2-BUTANONE	ND	10	.2
2-CHLOROTOLUENE	ND	.5	.2
2-HEXANONE	ND	10	.2
4-CHLOROTOLUENE	ND	.5	.2
4-METHYL-2-PENTANONE	ND	10	.2
ACETONE	2.1J	10	.2
BENZENE	ND	.5	.2
BROMOBENZENE	ND	.5	.2
BROMOCHLOROMETHANE	ND	.5	.2
BROMODICHLOROMETHANE	ND	.5	.2
BROMOFORM	ND	.5	.2
BROMOMETHANE	ND	.5	.2
CARBON DISULFIDE	ND	.5	.2
CARBON TETRACHLORIDE	ND	.5	.2
CHLOROBENZENE	ND	.5	.2
CHLOROETHANE	ND	.5	.2
CHLOROFORM	ND	.5	.2
CHLOROMETHANE	ND	.5	.2
CIS-1,2-DICHLOROETHENE	ND	.5	.2
CIS-1,3-DICHLOROPROPENE	ND	.5	.2
DIBROMOCHLOROMETHANE	ND	.5	.2
DIBROMOMETHANE	ND	.5	.2
DICHLORODIFLUOROMETHANE	ND	.5	.2
ETHYLBENZENE	ND	.5	.2
HEXACHLOROBUTADIENE	ND	.5	.2
ISOPROPYL BENZENE	ND	.5	.2
M/P-XYLENES	ND	.5	.2
METHYLENE CHLORIDE	ND	.5	.2
N-BUTYLBENZENE	ND	.5	.2
N-PROPYLBENZENE	ND	.5	.2
NAPHTHALENE	ND	.5	.2
O-XYLENE	ND	.5	.2
P-ISOPROPYLTOLUENE	ND	.5	.2
SEC-BUTYLBENZENE	ND	.5	.2
STYRENE	ND	.5	.2
TERT-BUTYLBENZENE	ND	.5	.2
TETRACHLOROETHYLENE	ND	.5	.2
TOLUENE	ND	.5	.2
TRANS-1,2-DICHLOROETHENE	ND	.5	.2
TRANS-1,3-DICHLOROPROPENE	ND	.5	.2
TRICHLOROETHENE	ND	.5	.2
TRICHLOROFLUOROMETHANE	ND	.5	.2
VINYL CHLORIDE	ND	.5	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	119	62-139
TOLUENE-D8	112	75-125
BROMOFLUOROBENZENE	98	75-125

R.L. : Reporting limit  
 \* : Out of QC  
 E : Exceeded calibration range  
 B : Found in associated method blank  
 J : Value between R.L. and MDL  
 D : Value from dilution analysis  
 D.O. : Diluted out

SW 50308/82608  
VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC.  
Project : MFA, SITE 1, CTO 86  
Batch No. : 050061  
Sample ID: 86-S1-113  
Lab Samp ID: D061-04  
Lab File ID: RDP177  
Ext Btch ID: V002D13  
Calib. Ref.: RDP025  
Date Collected: 04/12/05  
Date Received: 04/13/05  
Date Extracted: 04/16/05 03:13  
Date Analyzed: 04/16/05 03:13  
Dilution Factor: 1  
Matrix : WATER  
% Moisture : NA  
Instrument ID : T-002

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	5	2
1,1,1-TRICHLOROETHANE	ND	5	2
1,1,2,2-TETRACHLOROETHANE	ND	1	2
1,1,2-TRICHLOROETHANE	ND	5	2
1,1-DICHLOROETHANE	ND	5	2
1,1-DICHLOROETHENE	ND	5	2
1,1-DICHLOROPROPENE	ND	5	2
1,2,3-TRICHLOROBENZENE	ND	5	2
1,2,3-TRICHLOROPROPANE	ND	5	2
1,2,4-TRICHLOROBENZENE	ND	5	2
1,2,4-TRIMETHYLBENZENE	ND	5	2
1,2-DIBROMO-3-CHLOROPROPANE	ND	5	2
1,2-DICHLOROBENZENE	ND	5	2
1,2-DICHLOROETHANE	ND	5	2
1,3-DICHLOROPROPANE	ND	5	2
1,3-DICHLOROBENZENE	ND	5	2
1,3-DICHLOROPROPANE	ND	5	2
1,4-DICHLOROBENZENE	ND	5	2
2,2-DICHLOROPROPANE	ND	5	2
2-BUTANONE	ND	10	2
2-CHLOROTOLUENE	ND	5	2
2-HEXANONE	ND	10	2
4-CHLOROTOLUENE	ND	5	2
4-METHYL-2-PENTANONE	ND	10	2
ACETONE	ND	10	2
BENZENE	ND	5	2
BROMOBENZENE	ND	5	2
BROMOCHLOROMETHANE	ND	5	2
BROMODICHLOROMETHANE	ND	5	2
BROMOFORM	ND	1	2
BROMOMETHANE	ND	1	2
CARBON DISULFIDE	ND	5	2
CARBON TETRACHLORIDE	ND	5	2
CHLOROBENZENE	ND	5	2
CHLOROETHANE	ND	1	2
CHLOROFORM	ND	5	2
CHLOROMETHANE	ND	1	2
CIS-1,2-DICHLOROETHENE	ND	5	2
CIS-1,3-DICHLOROPROPENE	ND	5	2
DIBROMOCHLOROMETHANE	ND	5	2
DIBROMOMETHANE	ND	5	2
DICHLORODIFLUOROMETHANE	ND	5	2
ETHYL BENZENE	ND	5	2
HEXACHLOROBUTADIENE	ND	5	2
ISOPROPYL BENZENE	ND	5	2
M/P-XYLENES	ND	5	2
METHYLENE CHLORIDE	ND	5	2
N-BUTYLBENZENE	ND	5	2
N-PROPYLBENZENE	ND	5	2
NAPHTHALENE	ND	5	2
O-XYLENE	ND	5	2
P-ISOPROPYLTOLUENE	ND	5	2
SEC-BUTYLBENZENE	ND	5	2
STYRENE	ND	5	2
TERT-BUTYLBENZENE	ND	5	2
TETRACHLOROETHYLENE	ND	5	2
TOLUENE	ND	5	2
TRANS-1,2-DICHLOROETHENE	ND	5	2
TRANS-1,3-DICHLOROPROPENE	ND	5	2
TRICHLOROETHENE	ND	5	2
TRICHLOROFLUOROMETHANE	ND	1	2
VINYL CHLORIDE	ND	1	2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	117	62-139
TOLUENE-D8	110	75-125
BROMOFLUOROBENZENE	99	75-125

R.L. : Reporting limit  
\* : Out of QC  
E : Exceeded calibration range  
B : Found in associated method blank  
J : Value between R.L. and MDL  
D : Value from dilution analysis  
D.O. : Diluted out

SW 5030B/8260B  
VOLATILE ORGANICS BY GC/MS

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Client       : TETRA TECH FW, INC.      Date Collected: 04/12/05
Project      : MFA SITE 1, CTO 86      Date Received: 04/13/05
Batch No.    : 05D061                  Date Extracted: 04/20/05 15:26
Sample ID    : 86-S1-114               Date Analyzed: 04/20/05 15:26
Lab Samp ID  : D061-05                 Dilution Factor: 1
Lab File ID  : RDQ385                  Matrix          : WATER
Ext Btch ID  : V005032                 % Moisture       : NA
Calib. Ref.  : RDQ221                  Instrument ID    : T-005
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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,2-TETRACHLOROETHANE	ND	5	5
1,1,2-TRICHLOROETHANE	ND	5	5
1,1,2,2-TETRACHLOROETHANE	ND	1	5
1,2-DICHLOROETHANE	ND	5	5
1,1-DICHLOROETHANE	ND	5	5
1,1-DICHLOROETHENE	ND	5	5
1,1-DICHLOROPROPENE	ND	5	5
1,2,3-TRICHLOROBENZENE	ND	5	5
1,2,3-TRICHLOROPROPANE	ND	5	5
1,2,4-TRICHLOROBENZENE	ND	5	5
1,2,4-TRIMETHYLBENZENE	ND	5	5
1,2-DIBROMO-3-CHLOROPROPANE	ND	5	5
1,2-DICHLOROBENZENE	ND	5	5
1,2-DICHLOROETHANE	ND	5	5
1,2-DICHLOROPROPANE	ND	5	5
1,3,5-TRIMETHYLBENZENE	ND	5	5
1,3-DICHLOROBENZENE	ND	5	5
1,3-DICHLOROPROPANE	ND	5	5
1,4-DICHLOROBENZENE	ND	5	5
2,2-DICHLOROPROPANE	ND	5	5
2-BUTANONE	ND	10	5
2-CHLOROTOLUENE	ND	5	5
2-HEXANONE	ND	10	5
4-CHLOROTOLUENE	ND	5	5
4-METHYL-2-PENTANONE	ND	10	5
ACETONE	ND	10	5
BENZENE	ND	5	5
BROMOBENZENE	ND	5	5
BROMOCHLOROMETHANE	ND	5	5
BROMODICHLOROMETHANE	ND	5	5
BROMOFORM	ND	5	5
BROMOMETHANE	ND	5	5
CARBON DISULFIDE	ND	5	5
CARBON TETRACHLORIDE	ND	5	5
CHLOROBENZENE	ND	5	5
CHLOROETHANE	ND	5	5
CHLOROFORM	ND	5	5
CHLOROMETHANE	ND	5	5
CIS-1,2-DICHLOROETHENE	ND	5	5
CIS-1,3-DICHLOROPROPENE	ND	5	5
DIBROMOCHLOROMETHANE	ND	5	5
DIBROMOMETHANE	ND	5	5
DICHLORODIFLUOROMETHANE	ND	5	5
ETHYLBENZENE	ND	5	5
HEXACHLOROBUTADIENE	ND	5	5
ISOPROPYL BENZENE	ND	5	5
M/P-XYLENES	ND	5	5
METHYLENE CHLORIDE	ND	5	5
N-BUTYLBENZENE	ND	5	5
N-PROPYLBENZENE	ND	5	5
NAPHTHALENE	ND	5	5
O-XYLENE	ND	5	5
P-ISOPROPYLTOLUENE	ND	5	5
SEC-BUTYLBENZENE	ND	5	5
STYRENE	ND	5	5
TERT-BUTYLBENZENE	ND	5	5
TETRACHLOROETHYLENE	ND	5	5
TOLUENE	ND	5	5
TRANS-1,2-DICHLOROETHENE	ND	5	5
TRANS-1,3-DICHLOROPROPENE	ND	5	5
TRICHLOROETHENE	ND	5	5
TRICHLOROFLUOROMETHANE	ND	5	5
VINYL CHLORIDE	ND	5	5
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
1,2-DICHLOROETHANE-D4	121	62-139	
TOLUENE-D8	102	75-125	
BROMOFLUOROBENZENE	99	75-125	

R.L. : Reporting limit  
 \* : Out of QC  
 E : Exceeded calibration range  
 B : Found in associated method blank  
 J : Value between R.L. and MDL  
 D : Value from dilution analysis  
 D.O. : Diluted out



SW 5030B/8260B  
VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH, FW, INC.  
Project : MFA, SITE 1, CTO 86  
Batch No. : 050061  
Sample ID: 86-S1-115  
Lab Samp ID: D061-06  
Lab File ID: RD0386  
Ext Btch ID: V005032  
Calib. Ref.: RDQ221

Date Collected: 04/12/05  
Date Received: 04/13/05  
Date Extracted: 04/20/05 16:02  
Date Analyzed: 04/20/05 16:02  
Dilution Factor: 1  
Matrix : WATER  
% Moisture : NA  
Instrument ID : 1-C05

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	5	5
1,1,1-TRICHLOROETHANE	ND	5	5
1,1,2,2-TETRACHLOROETHANE	ND	1	1
1,1,2-TRICHLOROETHANE	ND	5	5
1,1-DICHLOROETHANE	ND	5	5
1,1-DICHLOROETHENE	ND	5	5
1,1-DICHLOROPROPENE	ND	5	5
1,2,3-TRICHLOROBENZENE	ND	5	5
1,2,3-TRICHLOROPROPANE	ND	5	5
1,2,4-TRICHLOROBENZENE	ND	5	5
1,2,4-TRIMETHYLBENZENE	ND	5	5
1,2-DIBROMO-3-CHLOROPROPANE	ND	5	5
1,2-DICHLOROBENZENE	ND	5	5
1,2-DICHLOROETHANE	ND	5	5
1,2-DICHLOROPROPANE	ND	5	5
1,3,5-TRIMETHYLBENZENE	ND	5	5
1,3-DICHLOROBENZENE	ND	5	5
1,3-DICHLOROPROPANE	ND	5	5
1,4-DICHLOROBENZENE	ND	5	5
2,2-DICHLOROPROPANE	ND	5	5
2-BUTANONE	ND	5	5
2-CHLOROTOLUENE	ND	5	5
2-HEXANONE	ND	5	5
4-CHLOROTOLUENE	ND	5	5
4-METHYL-2-PENTANONE	ND	5	5
ACETONE	3.1J	5	5
BENZENE	ND	5	5
BROMOBENZENE	ND	5	5
BROMOCHLOROMETHANE	ND	5	5
BROMODICHLOROMETHANE	ND	5	5
BROMOFORM	ND	5	5
BROMOMETHANE	ND	5	5
CARBON DISULFIDE	ND	5	5
CARBON TETRACHLORIDE	ND	5	5
CHLOROBENZENE	ND	5	5
CHLOROETHANE	ND	5	5
CHLOROFORM	ND	5	5
CHLOROMETHANE	ND	5	5
CIS-1,2-DICHLOROETHENE	ND	5	5
CIS-1,3-DICHLOROPROPENE	ND	5	5
DIBROMOCHLOROMETHANE	ND	5	5
DIBROMOMETHANE	ND	5	5
DICHLORODIFLUOROMETHANE	ND	5	5
ETHYLBENZENE	ND	5	5
HEXACHLOROBUTADIENE	ND	5	5
ISOPROPYL BENZENE	ND	5	5
M/P-XYLENES	ND	5	5
METHYLENE CHLORIDE	ND	5	5
N-BUTYLBENZENE	ND	5	5
N-PROPYLBENZENE	ND	5	5
NAPHTHALENE	ND	5	5
O-XYLENE	ND	5	5
P-ISOPROPYLTOLUENE	ND	5	5
SEC-BUTYLBENZENE	ND	5	5
STYRENE	ND	5	5
TERT-BUTYLBENZENE	ND	5	5
TETRACHLOROETHYLENE	ND	5	5
TOLUENE	ND	5	5
TRANS-1,2-DICHLOROETHENE	ND	5	5
TRANS-1,3-DICHLOROPROPENE	ND	5	5
TRICHLOROETHENE	ND	5	5
TRICHLOROFUOROMETHANE	ND	5	5
VINYL CHLORIDE	ND	5	5

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	114	62-139
TOLUENE-D8	101	75-125
BROMOFLUOROBENZENE	98	75-125

R.L. : Reporting limit  
\* : Out of QC  
E : Exceeded calibration range  
B : Found in associated method blank  
J : Value between R.L. and MDL  
D : Value from dilution analysis  
D.O. : Diluted out

**CASE NARRATIVE**

**CLIENT:** TETRA TECH FW, INC.

**PROJECT:** MFA, SITE 1, CTO 86

**SDG:** 05D061

**SW 3520C/8270C  
SEMI VOLATILE ORGANICS BY GC/MS**

Five (5) water samples were received on 04/13/05 for Semi Volatile Organic analysis by Method 3520C/8270C in accordance with USEPA SW846, 3<sup>rd</sup> ed.

**1. Holding Time**

Analytical holding time was met.

**2. Tuning and Calibration**

Tuning and calibration were carried out at 12-hour interval. All QC requirements were met.

**3. Method Blank**

Method blank was free of contamination at the reporting limit.

**4. Surrogate Recovery**

Recoveries were within QC limit.

**5. Lab Control Sample/Lab Control Sample Duplicate**

Recoveries were within QC limit.

**6. Matrix Spike/Matrix Spike Duplicate**

Sample D061-02 was spiked. All recoveries were within QC limit.

**7. Sample Analysis**

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

SW 3520C/8270C  
 SEMI VOLATILE ORGANICS BY GC/MS

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Client       : TETRA TECH FW, INC.      Date Collected: 04/11/05
Project      : MFA SITE 1, CTO 86      Date Received: 04/13/05
Batch No.    : 05D061                  Date Extracted: 04/18/05 13:00
Sample ID    : 86-S1-110               Date Analyzed: 04/19/05 15:49
Lab Samp ID  : D061-02                  Dilution Factor: 95
Lab File ID  : RDH116                    Matrix: WATER
Ext Btch ID  : SVD016W                  % Moisture: NA
Calib. Ref.  : RCH307                   Instrument ID: T-041
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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.5	4.8
2,4,6-TRICHLOROPHENOL	ND	9.5	4.8
2,4-DICHLOROPHENOL	ND	9.5	4.8
2,4-DIMETHYLPHENOL	ND	9.5	4.8
2,4-DINITROPHENOL	ND	9.5	4.8
2,4-DINITROTOLUENE	ND	9.5	5.7
2,6-DINITROTOLUENE	ND	9.5	4.8
2-CHLORONAPHTHALENE	ND	9.5	4.8
2-CHLOROPHENOL	ND	9.5	4.8
2-METHYLNAPHTHALENE	ND	9.5	4.8
2-METHYLPHENOL	ND	9.5	4.8
2-NITROANILINE	ND	9.5	5.7
2-NITROPHENOL	ND	9.5	4.8
3,3'-DICHLOROBENZIDINE	ND	9.5	4.8
3-NITROANILINE	ND	9.5	4.8
4,6-DINITRO-2-METHYLPHENOL	ND	9.5	6.6
4-BROMOPHENYL-PHENYL ETHER	ND	9.5	4.8
4-CHLORO-3-METHYLPHENOL	ND	9.5	4.8
4-CHLOROANILINE	ND	9.5	4.8
4-CHLOROPHENYL-PHENYL ETHER	ND	9.5	4.8
4-METHYLPHENOL (1)	ND	9.5	4.8
4-NITROANILINE	ND	9.5	4.8
4-NITROPHENOL	ND	9.5	4.8
ACENAPHTHENE	ND	9.5	4.8
ACENAPHTHYLENE	ND	9.5	4.8
ANTHRACENE	ND	9.5	4.8
BENZO(A)ANTHRACENE	ND	9.5	4.8
BENZO(A)PYRENE	ND	9.5	4.8
BENZO(B)FLUORANTHENE	ND	9.5	4.8
BENZO(K)FLUORANTHENE	ND	9.5	4.8
BENZO(G,H,I)PERYLENE	ND	9.5	4.8
BIS(2-CHLOROETHOXY)METHANE	ND	9.5	4.8
BIS(2-CHLOROETHYL)ETHER	ND	9.5	4.8
BIS(2-CHLOROISOPROPYL)ETHER	ND	9.5	4.8
BIS(2-ETHYLHEXYL)PHTHALATE	ND	9.5	4.8
BUTYLBENZYLPHTHALATE	ND	9.5	4.8
CHRYSENE	ND	9.5	4.8
DI-N-BUTYLPHTHALATE	ND	9.5	4.8
DI-N-OCTYLPHTHALATE	ND	9.5	4.8
DIBENZO(A,H)ANTHRACENE	ND	9.5	4.8
DIBENZOFURAN	ND	9.5	5.7
DIETHYLPHTHALATE	ND	9.5	4.8
DIMETHYLPHTHALATE	ND	9.5	4.8
FLUORANTHENE	ND	9.5	4.8
FLUORENE	ND	9.5	4.8
HEXACHLOROBENZENE	ND	9.5	5.7
HEXACHLOROCYCLOPENTADIENE	ND	9.5	4.8
HEXACHLOROETHANE	ND	9.5	4.8
INDENO(1,2,3-CD)PYRENE	ND	9.5	4.8
ISOPHORONE	ND	9.5	4.8
N-NITROSO-DI-N-PROPYLAMINE	ND	9.5	4.8
N-NITROSODIPHENYLAMINE (2)	ND	9.5	4.8
NITROBENZENE	ND	9.5	4.8
PENTACHLOROPHENOL	ND	9.5	5.7
PHENANTHRENE	ND	9.5	4.8
PHENOL	ND	9.5	4.8
PYRENE	ND	9.5	4.8
1,1'-BIPHENYL	ND	9.5	4.8
ACETOPHENONE	ND	9.5	2.6
ATRAZINE	ND	9.5	9.5
BENZALDEHYDE	ND	9.5	4.8
CAPROLACTAM	ND	9.5	4.8
CARBAZOLE	ND	9.5	4.8

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	62	25-134
2-FLUOROBIPHENYL	62	43-125
2-FLUOROPHENOL	58	25-125
NITROBENZENE-D5	63	32-125
PHENOL-D5	60	25-125
TERPHENYL-D14	76	42-126

RL: Reporting Limit  
 (1): Cannot be separated from 3-Methylphenol  
 (2): Cannot be separated from Diphenylamine

SW 3520C/8270C  
SEMI VOLATILE ORGANICS BY GC/MS

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=====
Client       : TETRA TECH FW, INC.      Date Collected: 04/11/05
Project      : MFA SITE 1, CTO 86      Date Received: 04/13/05
Batch No.    : 05D061                  Date Extracted: 04/16/05 13:00
Sample ID    : 86-S1-112               Date Analyzed: 04/19/05 17:12
Lab Samp ID  : D061-03                 Dilution Factor: .94
Lab File ID  : RDH119                  Matrix          : WATER
Ext Btch ID  : SVD016W                 % Moisture      : NA
Calib. Ref.  : RCH307                  Instrument ID   : T-041
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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	19	9.4
2,4-DINITROTOLUENE	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	5.6
3-CHLORONAPHTHALENE	ND	9.4	4.7
3-CHLOROPHENOL	ND	9.4	4.7
3-METHYLNAPHTHALENE	ND	9.4	4.7
3-METHYLPHENOL	ND	9.4	4.7
2-NITROANILINE	ND	19	5.6
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	19	9.4
4,6-DINITRO-2-METHYLPHENOL	ND	19	6.6
4-BROMOPHENYL-PHENYL ETHER	ND	9.4	4.7
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	9.4	4.7
4-NITROPHENOL	ND	19	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	9.4	4.7
BIS(2-ETHYLHEXYL)PHTHALATE	ND	19	9.4
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHTHALATE	ND	9.4	4.7
DI-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	19	5.6
DIETHYLPHTHALATE	ND	19	4.7
DIMETHYLPHTHALATE	ND	9.4	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	19	5.6
HEXACHLOROBENZENE	ND	9.4	4.7
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSODIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	19	9.4
PENTACHLOROPHENOL	ND	19	5.6
PHENANTHRENE	ND	9.4	4.7
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	2.3
ACETOPHENONE	ND	9.4	9.4
ATRAZINE	ND	9.4	4.7
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	63	25-134
2-FLUOROBIPHENYL	60	43-125
2-FLUOROPHENOL	55	25-125
NITROBENZENE-D5	60	32-125
PHENOL-D5	58	25-125
TERPHENYL-D14	72	42-126

RL: Reporting Limit  
(1): Cannot be separated from 3-Methylphenol  
(2): Cannot be separated from Diphenylamine

SW 3520C/8270C  
 SEMI VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC.	Date Collected: 04/12/05
Project : MFA, SITE 1, CTO 86	Date Received: 04/13/05
Batch No. : 05D061	Date Extracted: 04/18/05 13:00
Sample ID: 86-S1-113	Date Analyzed: 04/19/05 17:39
Lab Samp ID: DD61-04	Dilution Factor: .94
Lab File ID: RDH120	Matrix : WATER
Ext Btch ID: SVD016W	% Moisture : NA
Calib. Ref.: RCH307	Instrument ID : T-041

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	19	9.4
2,4-DINITROPHENOL	ND	19	9.4
2,4-DINITROTOLUENE	ND	19	5.6
2,6-DINITROTOLUENE	ND	9.4	4.7
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	19	5.6
3-NITROANILINE	ND	9.4	4.7
3-NITROPHENOL	ND	9.4	4.7
3,4-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	19	9.4
4,6-DINITRO-2-METHYLPHENOL	ND	19	6.6
4-BROMOPHENYL-PHENYL ETHER	ND	9.4	4.7
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLORDANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	19	4.7
4-NITROPHENOL	ND	9.4	4.7
ACENAPHTHRENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	19	9.4
BIS(2-ETHYLHEXYL)PHTHALATE	ND	9.4	4.7
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHTHALATE	ND	9.4	4.7
DI-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	19	5.6
DIETHYLPHTHALATE	ND	19	4.7
DIMETHYLPHTHALATE	ND	9.4	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	19	5.6
HEXACHLOROBENZENE	ND	9.4	4.7
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORENE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSODIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	19	9.4
PENTACHLOROPHENOL	ND	19	5.6
PHENANTHRENE	ND	9.4	4.7
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	2.3
ACETOPHENONE	ND	19	9.4
ATRAZINE	ND	9.4	4.7
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	69	25-134
2-FLUOROBIPHENYL	66	43-125
2-FLUOROPHENOL	60	25-125
NITROBENZENE-D5	66	32-125
PHENOL-D5	64	25-125
TERPHENYL-D14	83	42-126

RL: Reporting Limit  
 (1): Cannot be separated from 3-Methylphenol  
 (2): Cannot be separated from Diphenylamine

SW 3520C/B270C  
 SEMI VOLATILE ORGANICS BY GC/MS

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=====
Client       : TETRA TECH FW, INC.      Date Collected: 04/12/05
Project      : MFA, SITE 1, CTO 86     Date Received: 04/13/05
Batch No.    : 050061                  Date Extracted: 04/16/05 13:00
Sample ID    : 86-S1-114               Date Analyzed: 04/19/05 18:07
Lab Samp ID  : D061-05                 Dilution Factor: 97
Lab File ID  : RDH121                  Matrix: WATER
Ext Btch ID  : SVD016W                 % Moisture: NA
Calib. Ref.  : RCH307                  Instrument ID : T-041
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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.7	4.9
2,4,6-TRICHLOROPHENOL	ND	9.7	4.9
2,4-DICHLOROPHENOL	ND	9.7	4.9
2,4-DIMETHYLPHENOL	ND	9.7	4.9
2,4-DINITROPHENOL	ND	19	9.7
2,4-DINITROTOLUENE	ND	19	9.7
2,6-DINITROTOLUENE	ND	19	5.8
2-CHLORONAPHTHALENE	ND	9.7	4.9
2-CHLOROPHENOL	ND	9.7	4.9
2-METHYLNAPHTHALENE	ND	9.7	4.9
2-METHYLPHENOL	ND	9.7	4.9
2-NITROANILINE	ND	19	3.8
2-NITROPHENOL	ND	9.7	4.9
3,3'-DICHLOROBENZIDINE	ND	9.7	4.9
3-NITROANILINE	ND	9.7	4.9
4,6-DINITRO-2-METHYLPHENOL	ND	19	9.7
4-BROMOPHENYL-PHENYL ETHER	ND	19	6.8
4-CHLORO-3-METHYLPHENOL	ND	9.7	4.9
4-CHLOROANILINE	ND	9.7	4.9
4-CHLOROPHENYL-PHENYL ETHER	ND	9.7	4.9
4-METHYLPHENOL (1)	ND	9.7	4.9
4-NITROANILINE	ND	9.7	4.9
4-NITROPHENOL	ND	19	4.9
ACENAPHTHENE	ND	9.7	4.9
ACENAPHTHYLENE	ND	9.7	4.9
ANTHRACENE	ND	9.7	4.9
BENZO(A)ANTHRACENE	ND	9.7	4.9
BENZO(A)PYRENE	ND	9.7	4.9
BENZO(B)FLUORANTHENE	ND	9.7	4.9
BENZO(K)FLUORANTHENE	ND	9.7	4.9
BENZO(G,H,I)PERYLENE	ND	9.7	4.9
BIS(2-CHLOROETHOXY)METHANE	ND	9.7	4.9
BIS(2-CHLOROETHYL)ETHER	ND	9.7	4.9
BIS(2-CHLOROISOPROPYL)ETHER	ND	9.7	4.9
BIS(2-ETHYLHEXYL)PHTHALATE	ND	19	9.7
BUTYLBENZYLPHTHALATE	ND	9.7	4.9
CHRYSENE	ND	9.7	4.9
DI-N-BUTYLPHTHALATE	ND	9.7	4.9
DI-N-OCTYLPHTHALATE	ND	9.7	4.9
DIBENZO(A,H)ANTHRACENE	ND	9.7	4.9
DIBENZOFURAN	ND	9.7	4.9
DIETHYLPHTHALATE	ND	19	5.8
DIMETHYLPHTHALATE	ND	19	4.9
FLUORANTHENE	ND	9.7	4.9
FLUORENE	ND	9.7	4.9
HEXACHLOROBENZENE	ND	19	5.8
HEXACHLOROCYCLOPENTADIENE	ND	9.7	4.9
HEXACHLOROETHANE	ND	9.7	4.9
INDENO(1,2,3-CD)PYRENE	ND	9.7	4.9
ISOPHORONE	ND	9.7	4.9
N-NITROSO-D1-N-PROPYLAMINE	ND	9.7	4.9
N-NITROSODIPHENYLAMINE (2)	ND	9.7	4.9
NITROBENZENE	ND	9.7	4.9
PENTACHLOROPHENOL	ND	19	5.8
PHENANTHRENE	ND	9.7	4.9
PHENOL	ND	9.7	4.9
PYRENE	ND	9.7	4.9
1,1'-BIPHENYL	ND	9.7	4.9
ACETOPHENONE	ND	9.7	2.4
ATRAZINE	ND	19	9.7
BENZALDEHYDE	ND	9.7	4.9
CAPROLACTAM	ND	9.7	4.9
CARBAZOLE	ND	9.7	4.9

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	71	25-134
2-FLUOROBIPHENYL	67	43-125
2-FLUOROPHENOL	64	25-125
NITROBENZENE-D5	68	32-125
PHENOL-D5	67	25-125
TERPHENYL-D14	84	42-126

RL: Reporting Limit  
 (1): Cannot be separated from 3-Methylphenol  
 (2): Cannot be separated from Diphenylamine

SW 3520C/8270C  
 SEMI VOLATILE ORGANICS BY GC/MS

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=====
Client       : TETRA TECH FW, INC.      Date Collected: 04/12/05
Project      : MFA, SITE 1, CTO 86     Date Received: 04/13/05
Batch No.    : 05D061                  Date Extracted: 04/16/05 13:00
Sample ID    : 86-S1-115                Date Analyzed: 04/19/05 18:55
Lab Samp ID  : 0061-06                  Dilution Factor: 94
Lab File ID  : RDH122                   Matrix: WATER
Ext Btch ID  : SVD016W                  % Moisture: NA
Calib. Ref.  : RCH307                   Instrument ID : T-041
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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	19	9.4
2,4-DINITROTOLUENE	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	5.6
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	9.4	4.7
2-NITROANILINE	ND	19	5.6
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	9.4	4.7
4,6-DINITRO-2-METHYLPHENOL	ND	19	9.4
4-BROMOPHENYL-PHENYL ETHER	ND	9.4	6.6
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	19	4.7
4-NITROPHENOL	ND	9.4	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	19	9.4
BIS(2-ETHYLHEXYL)PHTHALATE	ND	9.4	4.7
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
D1-N-BUTYLPHTHALATE	ND	9.4	4.7
D1-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	19	5.6
DIETHYLPHTHALATE	ND	19	4.7
DIMETHYLPHTHALATE	ND	9.4	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	19	5.6
HEXACHLOROBENZENE	ND	9.4	4.7
HEXACHLOROCLYCOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-D1-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSODIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	19	9.4
PENTACHLOROPHENOL	ND	19	5.6
PHENANTHRENE	ND	9.4	4.7
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	2.3
ACETOPHENONE	ND	19	9.4
ATRAZINE	ND	9.4	4.7
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	80	25-134
2-FLUOROBIPHENYL	75	43-125
2-FLUOROPHENOL	67	25-125
NITROBENZENE-D5	75	52-125
PHENOL-D5	72	25-125
TERPHENYL-D14	93	42-126

RL: Reporting Limit  
 (1): Cannot be separated from 3-Methylphenol  
 (2): Cannot be separated from Diphenylamine

**CASE NARRATIVE**

**CLIENT:** TETRA TECH FW, INC.  
**PROJECT:** MFA, SITE 1, CTO 86  
**SDG:** 05D061

**SW3520C/8081A  
PESTICIDES**

Five (5) water samples were received on 04/13/05 for Pesticides analysis by Method 3520C/8081A in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3<sup>rd</sup> ed.

**1. Holding Time**

Analytical holding time was met.

**2. Instrument Performance and Calibration**

Initial calibration was at five-point for Pesticides, all RSDs were within 20%. All continue calibrations were analyzed at 12 hour interval and mean recoveries were within 85-115%. Endrin and DDT breakdown were within QC limits.

**3. Method Blank**

Method blank was free of contamination at the reporting limit.

**4. Surrogate Recovery**

Recoveries were within QC limit.

**5. Lab Control Sample/Lab Control Sample Duplicate**

All recoveries were within QC limits.

**6. Matrix Spike/Matrix Spike Duplicate**

Sample D061-02 was spiked. All recoveries were within QC limits.

**7. Sample Analysis**

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

When sample results are confirmed by a second column, the relative percentage difference (RPD) between the two results is calculated. If RPD is less than 40%, and no evidence of chromatographic problems, the higher result is reported. If RPD is greater than 40%, the chromatogram is checked for anomalies and results are selected based on the best professional judgement. If no evidence of any chromatographic problems, the higher result is reported.



SW3520C/8081A  
PESTICIDES

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=====
Client       : TETRA TECH FW, INC.      Date Collected: 04/11/05
Project      : MFA, SITE 1, CTO 86      Date Received: 04/13/05
Batch No.    : 05D061                   Date Extracted: 04/14/05 13:00
Sample ID    : 86-S1-110                Date Analyzed: 04/18/05 17:20
Lab Samp ID  : D061-02                  Dilution Factor: .94
Lab File ID  : SD18014A                 Matrix       : WATER
Ext Btch ID  : CPD012W                  % Moisture    : NA
Calib. Ref.  : SD18003A                 Instrument ID : GCT008
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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ALPHA-BHC	(ND) (ND)	.047	.0094 .0094
GAMMA-BHC (LINDANE)	(ND) (ND)	.047	.0094 .0094
BETA-BHC	(ND) (ND)	.047	.0094 .0094
HEPTACHLOR	(ND) (ND)	.047	.0094 .0094
DELTA-BHC	(ND) (ND)	.047	.0094 .0094
ALDRIN	(ND) (ND)	.047	.0094 .0094
HEPTACHLOR EPOXIDE	(ND) (ND)	.047	.0094 .0094
GAMMA-CHLORDANE	(ND) (ND)	.047	.0094 .0094
ALPHA-CHLORDANE	(ND) (ND)	.047	.0094 .0094
ENDOSULFAN I	(ND) (ND)	.047	.028 .028
4,4'-DDE	(ND) (ND)	.094	.028 .028
DIELDRIN	(ND) (ND)	.19	.094 .094
ENDRIN	(ND) (ND)	.094	.019 .019
4,4'-DDD	(ND) (ND)	.094	.028 .028
ENDOSULFAN II	(ND) (ND)	.094	.019 .019
4,4'-DDT	(ND) (ND)	.094	.019 .019
ENDRIN ALDEHYDE	(ND) (ND)	.094	.019 .019
ENDOSULFAN SULFATE	(ND) (ND)	.094	.019 .019
ENDRIN KETONE	(ND) (ND)	.094	.019 .019
METHOXYCHLOR	(ND) (ND)	.47	.094 .094
TOXAPHENE	(ND) (ND)	2.8	1.2 1.2
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
TETRACHLORO-M-XYLENE	80 (89)	30-130	
DECACHLOROBIPHENYL	(89) 87	30-130	

RL : Reporting limit  
Left of | is related to first column ; Right of | related to second column  
( ) included the reported column

SW3520C/8081A  
PESTICIDES

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=====
Client      : TETRA TECH FW, INC.      Date Collected: 04/11/05
Project     : MFA, SITE 1, CTO 86      Date Received: 04/13/05
Batch No.   : 050061 ..               Date Extracted: 04/14/05 13:00
Sample ID: 86-S1-112                 Date Analyzed: 04/18/05 18:35
Lab Samp ID: D061-03                 Dilution Factor: .94
Lab File ID: SD18017A                Matrix      : WATER
Ext Btch ID: CPD012W                 % Moisture   : NA
Calib. Ref.: SD18003A                Instrument ID : GCT008
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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ALPHA-BHC	(ND) ND	.047	.0094 .0094
GAMMA-BHC (LINDANE)	(ND) ND	.047	.0094 .0094
BETA-BHC	(ND) ND	.047	.0094 .0094
HEPTACHLOR	(ND) ND	.047	.0094 .0094
DELTA-BHC	(ND) ND	.047	.0094 .0094
ALDRIN	(ND) .014J	.047	.0094 .0094
HEPTACHLOR EPOXIDE	(ND) ND	.047	.0094 .0094
GAMMA-CHLORDANE	(ND) ND	.047	.0094 .0094
ALPHA-CHLORDANE	(ND) ND	.047	.0094 .0094
ENDOSULFAN I	(ND) ND	.047	.028 .028
4,4'-DDE	(ND) ND	.094	.028 .028
DIELDRIN	(ND) ND	.19	.094 .094
ENDRIN	(ND) ND	.094	.019 .019
4,4'-DDD	(ND) ND	.094	.028 .028
ENDOSULFAN II	(ND) ND	.094	.019 .019
4,4'-DDT	(ND) ND	.094	.019 .019
ENDRIN ALDEHYDE	(ND) ND	.094	.019 .019
ENDOSULFAN SULFATE	(ND) ND	.094	.019 .019
ENDRIN KETONE	(ND) ND	.094	.019 .019
METHOXYCHLOR	(ND) ND	.47	.094 .094
TOXAPHENE	(ND) ND	2.8	1.2 1.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	54 (68)	30-130
DECACHLOROBIPHENYL	(85) 84	30-130

RL : Reporting limit  
Left of | is related to first column ; Right of | related to second column  
( ) included the reported column

SW3520C/8081A  
 PESTICIDES

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=====
Client      : TETRA TECH FW, INC.      Date Collected: 04/12/05
Project     : MFA, SITE 1, CTD 86      Date Received: 04/13/05
Batch No.   : 05D061                  Date Extracted: 04/14/05 13:00
Sample ID: 86-S1-113                  Date Analyzed: 04/18/05 19:01
Lab Samp ID: D061-04                  Dilution Factor: 1.06
Lab File ID: SD18018A                  Matrix       : WATER
Ext Btch ID: CPD012W                  % Moisture    : NA
Calib. Ref.: SD18003A                  Instrument ID : GCT008
=====
  
```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ALPHA-BHC	(ND) ND	.053	.011
GAMMA-BHC (LINDANE)	(ND) ND	.053	.011
BETA-BHC	(ND) ND	.053	.011
HEPTACHLOR	(ND) ND	.053	.011
DELTA-BHC	(ND) ND	.053	.011
ALDRIN	(ND) ND	.053	.011
HEPTACHLOR EPOXIDE	(ND) ND	.053	.011
GAMMA-CHLORDANE	(ND) ND	.053	.011
ALPHA-CHLORDANE	(ND) ND	.053	.011
ENDOSULFAN I	(ND) ND	.053	.032
4,4'-DDE	(ND) ND	.11	.032
DIELDRIN	(ND) ND	.21	.11
ENDRIN	(ND) ND	.11	.021
4,4'-DDD	(ND) ND	.11	.032
ENDOSULFAN II	(ND) ND	.11	.021
4,4'-DDT	(ND) ND	.11	.021
ENDRIN ALDEHYDE	(ND) ND	.11	.021
ENDOSULFAN SULFATE	(ND) ND	.11	.021
ENDRIN KETONE	(ND) ND	.11	.021
METHOXYCHLOR	(ND) ND	.53	.11
TOXAPHENE	(ND) ND	3.2	1.3

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	57 (63)	30-130
DECACHLOROBIPHENYL	(84) 83	30-130

RL : Reporting limit  
 Left of | is related to first column ; Right of | related to second column  
 ( ) included the reported column

SW3520C/8081A  
 PESTICIDES

```

=====
Client      : TETRA TECH FW, INC.      Date Collected: 04/12/05
Project     : MFA, SITE 1, CTO 86      Date Received: 04/13/05
Batch No.   : 05D061 ..               Date Extracted: 04/14/05 13:00
Sample ID: 86-S1-114                 Date Analyzed: 04/18/05 19:26
Lab Samp ID: D061-05                 Dilution Factor: .94
Lab File ID: SD18019A                Matrix      : WATER
Ext Btch ID: CPD012W                 % Moisture   : NA
Calib. Ref.: SD18003A                Instrument ID: GCT008
=====
  
```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ALPHA-BHC	(ND)   ND	.047	.0094   .0094
GAMMA-BHC (LINDANE)	(ND)   ND	.047	.0094   .0094
BETA-BHC	(ND)   ND	.047	.0094   .0094
HEPTACHLOR	(ND)   ND	.047	.0094   .0094
DELTA-BHC	(ND)   ND	.047	.0094   .0094
ALDRIN	(ND)   ND	.047	.0094   .0094
HEPTACHLOR EPOXIDE	(ND)   ND	.047	.0094   .0094
GAMMA-CHLORDANE	(ND)   ND	.047	.0094   .0094
ALPHA-CHLORDANE	(ND)   ND	.047	.0094   .0094
ENDOSULFAN I	(ND)   ND	.047	.028   .028
4,4'-DDE	(ND)   ND	.094	.028   .028
DIELDRIN	(ND)   ND	.19	.094   .094
ENDRIN	(ND)   ND	.094	.019   .019
4,4'-DDD	(ND)   ND	.094	.028   .028
ENDOSULFAN II	(ND)   ND	.094	.019   .019
4,4'-DDT	(ND)   ND	.094	.019   .019
ENDRIN ALDEHYDE	(ND)   ND	.094	.019   .019
ENDOSULFAN SULFATE	(ND)   ND	.094	.019   .019
ENDRIN KETONE	(ND)   ND	.094	.019   .019
METHOXYCHLOR	(ND)   ND	.47	.094   .094
TOXAPHENE	(ND)   ND	2.8	1.2   1.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	78   (87)	30-130
DECACHLOROBIPHENYL	(88)   87	30-130

RL : Reporting limit  
 Left of | is related to first column ; Right of | related to second column  
 ( ) included the reported column

SW3520C/8081A  
PESTICIDES

```

=====
Client      : TETRA TECH FW, INC.      Date Collected: 04/12/05
Project     : MFA, SITE 1, CTO 86      Date Received: 04/13/05
Batch No.   : 05D061                  Date Extracted: 04/14/05 13:00
Sample ID   : 86-S1-115                Date Analyzed: 04/18/05 19:51
Lab Samp ID : D061-06                  Dilution Factor: .94
Lab File ID : SD18020A                 Matrix       : WATER
Ext Btch ID : CPD012W                  % Moisture    : NA
Calib. Ref. : SD18003A                 Instrument ID : GCT008
=====

```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ALPHA-BHC	(ND)   ND	.047	.0094   .0094
GAMMA-BHC (LINDANE)	(ND)   ND	.047	.0094   .0094
BETA-BHC	(ND)   ND	.047	.0094   .0094
HEPTACHLOR	(ND)   ND	.047	.0094   .0094
DELTA-BHC	(ND)   ND	.047	.0094   .0094
ALDRIN	(ND)   ND	.047	.0094   .0094
HEPTACHLOR EPOXIDE	(ND)   ND	.047	.0094   .0094
GAMMA-CHLORDANE	(ND)   ND	.047	.0094   .0094
ALPHA-CHLORDANE	(ND)   ND	.047	.0094   .0094
ENDOSULFAN I	(ND)   ND	.094	.028   .028
4,4'-DDE	(ND)   ND	.19	.094   .094
DIELDRIN	(ND)   ND	.094	.019   .019
ENDRIN	(ND)   ND	.094	.028   .028
4,4'-DDD	(ND)   ND	.094	.019   .019
ENDOSULFAN II	(ND)   ND	.094	.019   .019
4,4'-DDT	(ND)   ND	.094	.019   .019
ENDRIN ALDEHYDE	(ND)   ND	.094	.019   .019
ENDOSULFAN SULFATE	(ND)   ND	.094	.019   .019
ENDRIN KETONE	(ND)   ND	.47	.094   .094
METHOXYCHLOR	(ND)   ND	2.8	1.2   1.2
TOXAPHENE	(ND)   ND		

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	65   (67)	30-130
DECACHLOROBIPHENYL	(88)   84	30-130

RL : Reporting limit  
Left of | is related to first column ; Right of | related to second column  
( ) included the reported column

**CASE NARRATIVE**

**CLIENT:** TETRA TECH FW, INC.  
**PROJECT:** MFA, SITE 1, CTO 86  
**SDG:** 05D061

**SW3520C/8082**  
**PCBs**

Five (5) water samples were received on 04/13/05 for PCBs analysis by Method 3520C/8082 in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3<sup>rd</sup> ed.

**1. Holding Time**

Analytical holding time was met.

**2. Instrument Performance and Calibration**

Initial calibration was five points for PCB-1016 and PCB-1260, all RSDs were within 20%. All continue calibrations were analyzed at 12 hour interval and all recoveries were within 85-115%.

**3. Method Blank**

Method blank was free of contamination at the reporting limit.

**4. Surrogate Recovery**

Recoveries were within QC limit.

**5. Lab Control Sample/Lab Control Sample Duplicate**

All recoveries were within QC limits.

**6. Matrix Spike/Matrix Spike Duplicate**

Sample D061-02 was spiked. All recoveries were within QC limit.

**7. Sample Analysis**

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

SW3520C/8082  
PCBs

```

=====
Client      : TETRA TECH FW, INC.      Date Collected: 04/11/05
Project     : MFA, SITE 1, CTO 86      Date Received: 04/13/05
Batch No.   : 05D061                  Date Extracted: 04/14/05 13:00
Sample ID   : 86-S1-110               Date Analyzed: 04/18/05 17:20
Lab Samp ID : D061-02                 Dilution Factor: .94
Lab File ID : SD18014A                Matrix       : WATER
Ext Btch ID : CPD012W                 % Moisture    : NA
Calib. Ref. : SD18006A                Instrument ID : GGT008
=====

```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
PCB-1016	(ND) ND	.94	.24 .24
PCB-1221	(ND) ND	.94	.24 .24
PCB-1232	(ND) ND	.94	.24 .24
PCB-1242	(ND) ND	.94	.24 .24
PCB-1248	(ND) ND	.94	.24 .24
PCB-1254	(ND) ND	.94	.24 .24
PCB-1260	(ND) ND	.94	.24 .24

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(72) 83	30-130
DECACHLOROBIPHENYL	(98) 97	30-130

RL: Reporting Limit  
Left of | is related to first column ; Right of | related to second column  
( ) included the reported column  
\* Out side of QC Limit

SW3520C/8082  
PCBs

```

=====
Client      : TETRA TECH FW, INC.      Date Collected: 04/11/05
Project     : MFA, SITE 1, CTO 86      Date Received: 04/13/05
Batch No.   : 050061                  Date Extracted: 04/14/05 13:00
Sample ID   : 86-S1-112                Date Analyzed: 04/18/05 18:35
Lab Samp ID : D061-03                  Dilution Factor: .94
Lab File ID : SD18017A                 Matrix          : WATER
Ext Btch ID : CPD012W                  % Moisture       : NA
Calib. Ref. : SD18006A                 Instrument ID    : GCT008
=====

```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
PCB-1016	(ND)   ND	.94	.24   .24
PCB-1221	(ND)   ND	.94	.24   .24
PCB-1232	(ND)   ND	.94	.24   .24
PCB-1242	(ND)   ND	.94	.24   .24
PCB-1248	(ND)   ND	.94	.24   .24
PCB-1254	(ND)   ND	.94	.24   .24
PCB-1260	(ND)   ND	.94	.24   .24

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(54)   63	30-130
DECACHLOROBIPHENYL	(93)   93	30-130

RL: Reporting Limit  
Left of | is related to first column ; Right of | related to second column  
( ) included the reported column  
\* Out side of QC Limit



SW3520C/8082  
PCBs

```

=====
Client      : TETRA TECH FW, INC.      Date Collected: 04/12/05
Project     : MFA, SITE 1, CTO 86      Date Received: 04/13/05
Batch No.   : 050061                  Date Extracted: 04/14/05 13:00
Sample ID: 86-S1-113                  Date Analyzed: 04/18/05 19:01
Lab Samp ID: D061-04                  Dilution Factor: 1.06
Lab File ID: SD18018A                 Matrix       : WATER
Ext Btch ID: CPD012W                  % Moisture    : NA
Calib. Ref.: SD18006A                 Instrument ID : GCT008
=====

```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
PCB-1016	(ND) ND	1.1	.26 .26
PCB-1221	(ND) ND	1.1	.26 .26
PCB-1232	(ND) ND	1.1	.26 .26
PCB-1242	(ND) ND	1.1	.26 .26
PCB-1248	(ND) ND	1.1	.26 .26
PCB-1254	(ND) ND	1.1	.26 .26
PCB-1260	(ND) ND	1.1	.26 .26

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(52) 60	30-130
DECACHLOROBIPHENYL	(94) 91	30-130

RL: Reporting Limit  
 Left of | is related to first column ; Right of | related to second column  
 ( ) included the reported column  
 \* Out side of QC Limit

SW3520C/8082  
PCBs

```

=====
Client      : TETRA TECH FW, INC.      Date Collected: 04/12/05
Project     : MFA, SITE 1, CTO 86      Date Received: 04/13/05
Batch No.   : 05D061                   Date Extracted: 04/14/05 13:00
Sample ID   : 86-S1-114                 Date Analyzed: 04/18/05 19:26
Lab Samp ID : D061-05                    Dilution Factor: .94
Lab File ID : SD18019A                   Matrix       : WATER
Ext Btch ID : CPD012W                     % Moisture    : NA
Calib. Ref. : SD18006A                    Instrument ID : GCT008
=====

```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
PCB-1016	(ND) ND	.94	.24 .24
PCB-1221	(ND) ND	.94	.24 .24
PCB-1232	(ND) ND	.94	.24 .24
PCB-1242	(ND) ND	.94	.24 .24
PCB-1248	(ND) ND	.94	.24 .24
PCB-1254	(ND) ND	.94	.24 .24
PCB-1260	(ND) ND	.94	.24 .24

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(75) 83	30-130
DECACHLOROBIPHENYL	(98) 96	30-130

RL: Reporting Limit  
Left of | is related to first column ; Right of | related to second column  
( ) included the reported column  
\* Out side of QC Limit

SW3520C/8082  
PCBs

```
=====
Client      : TETRA TECH FW, INC.      Date Collected: 04/12/05
Project     : MFA, SITE 1, CTO 86      Date Received: 04/13/05
Batch No.   : 05D061                  Date Extracted: 04/14/05 13:00
Sample ID   : 86-S1-115                Date Analyzed: 04/18/05 19:51
Lab Samp ID : D061-06                  Dilution Factor: .94
Lab File ID : SD18020A                 Matrix       : WATER
Ext Btch ID : CPD012W                  % Moisture    : NA
Calib. Ref. : SD18006A                 Instrument ID : GCT008
=====
```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
PCB-1016	(ND) ND	.94	.24 .24
PCB-1221	(ND) ND	.94	.24 .24
PCB-1232	(ND) ND	.94	.24 .24
PCB-1242	(ND) ND	.94	.24 .24
PCB-1248	(ND) ND	.94	.24 .24
PCB-1254	(ND) ND	.94	.24 .24
PCB-1260	(ND) ND	.94	.24 .24

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(55) 67	30-130
DECACHLOROBIPHENYL	(97) 93	30-130

RL: Reporting Limit  
Left of | is related to first column ; Right of | related to second column  
( ) included the reported column  
\* Out side of QC Limit

**CASE NARRATIVE**

**CLIENT:** TETRA TECH FW, INC.  
**PROJECT:** MFA, SITE 1, CTO 86  
**SDG:** 05D061

**METHOD 7470A**  
**DISSOLVED MERCURY BY COLD VAPOR**

Five (5) water samples were received on 04/13/05 for Dissolved Mercury analysis by Method 7470A in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3<sup>rd</sup> edition.

**1. Holding Time**

Analysis met holding time criteria.

**2. Method Blank**

Method blank was free of contamination at the reporting limit.

**3. Lab Control Sample/Lab Control Sample Duplicate**

Lab control results were within QC limit.

**4. Serial Dilution / Post-Analytical Spike**

Sample D061-02 was analyzed for serial dilution and post-analytical spike. All QC requirements were met.

**5. Matrix Spike/Matrix Spike Duplicate**

Sample D061-02 was spiked. All recoveries were within QC limit.

**6. Sample Analysis**

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

Samples were analyzed at DF 20 due to matrix interference.

METHOD 7470A  
DISSOLVED MERCURY BY COLD VAPOR

Matrix : WATER  
Instrument ID : 11047

Client : TETRA TECH FM, INC.  
Project : MFA, SITE 1, CTO 86  
Batch No. : 050061

SAMPLE ID	EMAX SAMPLE ID	RESULTS (ug/L)	DLF	MOIST	RL (ug/L)	MDL (ug/L)	Analysis DATE/TIME	Extraction DATE/TIME	LCID	CAL REF	PREP BATCH	Collection DATE/TIME	Received DATE/TIME
MBLK1W	HGD016MB	ND	1	NA	.2	.1	04/20/0517:08	04/19/0515:30	M47D015010	M47D015008	HGD016W	NA	04/19/05
LCS1W	HGD016ML	4.95	1	NA	.2	.1	04/20/0517:10	04/19/0515:30	M47D015011	M47D015008	HGD016W	NA	04/19/05
LCS1W	HGD016MC	4.91	1	NA	.2	.1	04/20/0517:12	04/19/0515:30	M47D015012	M47D015008	HGD016W	NA	04/13/05
86-S1-110AS	D061-02A	4.3	20	NA	4	2	04/20/0517:15	04/19/0515:30	M47D015013	M47D015008	HGD016W	04/11/05	04/13/05
86-S1-110	D061-02	ND	20	NA	4	2	04/20/0517:17	04/19/0515:30	M47D015014	M47D015008	HGD016W	04/11/05	04/13/05
86-S1-110DL	D061-021	ND	100	NA	20	10	04/20/0517:20	04/19/0515:30	M47D015015	M47D015008	HGD016W	04/11/05	04/13/05
86-S1-110MS	D061-02M	4.58	20	NA	4	2	04/20/0517:22	04/19/0515:30	M47D015016	M47D015008	HGD016W	04/11/05	04/13/05
86-S1-110MSD	D061-02S	4.98	20	NA	4	2	04/20/0517:25	04/19/0515:30	M47D015017	M47D015008	HGD016W	04/11/05	04/13/05
86-S1-112	D061-03	ND	20	NA	4	2	04/20/0517:27	04/19/0515:30	M47D015018	M47D015008	HGD016W	04/11/05	04/13/05
86-S1-113	D061-04	ND	20	NA	4	2	04/20/0517:29	04/19/0515:30	M47D015019	M47D015008	HGD016W	04/12/05	04/13/05
86-S1-114	D061-05	ND	20	NA	4	2	04/20/0517:37	04/19/0515:30	M47D015022	M47D015020	HGD016W	04/12/05	04/13/05
86-S1-115	D061-06	ND	20	NA	4	2	04/20/0517:39	04/19/0515:30	M47D015023	M47D015020	HGD016W	04/12/05	04/13/05

RL: Reporting Limit

7003

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Airfield, MFA Site 1, CTO 86  
**Collection Date:** April 11 through April 12, 2005  
**LDC Report Date:** May 25, 2005  
**Matrix:** Water  
**Parameters:** Volatiles  
**Validation Level:** EPA Level III & IV  
**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 05D061

**Sample Identification**

86-S1-122  
86-S1-110  
86-S1-112  
86-S1-113  
86-S1-114\*\*  
86-S1-115  
86-S1-110MS  
86-S1-110MSD

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 8 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## **III. Initial Calibration**

Initial calibration was performed using required standard concentrations.

The mean percent relative standard deviation (%RSD) for all compounds was less than or equal to 15.0% and less than or equal to 30.0% for all individual compounds.

Average relative response factors (RRF) for all system performance check compounds (SPCCs) were within method and validation criteria.

## **IV. Continuing Calibration**

Continuing calibration was performed at the required frequencies.

For the purposes of technical evaluation, all compounds were evaluated against the 20.0% (%D) National Functional Guideline criteria. Unless noted above, all compounds were within the validation criteria.

Initial calibration verification (ICV) percent differences (%D) were less than or equal to 20.0% for all compounds.

All of the continuing calibration RRF values for all system performance check compounds (SPCCs) were within method and validation criteria.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.



## **VII. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

All internal standard areas and retention times were within QC limits.

## **XI. Target Compound Identifications**

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XII. Compound Quantitation and CRQLs**

All compound quantitation and CRQLs were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XIII. Tentatively Identified Compounds (TICs)**

Tentatively identified compounds were not reported by the laboratory.

## **XIV. System Performance**

The system performance was within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XV. Overall Assessment**

Data flags have been summarized at the end of the report.

#### **XVI. Field Duplicates**

Samples 86-S1-113 and 86-S1-115 were identified as field duplicates. No volatiles were detected in any of the samples.

#### **XVII. Field Blanks**

Sample 86-S1-122 was identified as a trip blank. No volatile contaminants were found in this blank.

**Moffett Airfield, MFA Site 1, CTO 86**

**Volatiles - Data Qualification Summary - SDG 05D061**

No Sample Data Qualified in this SDG

**Moffett Airfield, MFA Site 1, CTO 86**

**Volatiles - Laboratory Blank Data Qualification Summary - SDG 05D061**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Airfield, MFA Site 1, CTO 86  
**Collection Date:** April 11 through April 12, 2005  
**LDC Report Date:** May 25, 2005  
**Matrix:** Water  
**Parameters:** Semivolatiles  
**Validation Level:** EPA Level III & IV  
**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 05D061

**Sample Identification**

86-S1-110  
86-S1-112  
86-S1-113  
86-S1-114\*\*  
86-S1-115  
86-S1-110MS  
86-S1-110MSD

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 7 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270C for Semivolatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## **III. Initial Calibration**

Initial calibration was performed using required standard concentrations.

The mean percent relative standard deviation (%RSD) for all compounds was less than or equal to 15.0% and less than or equal to 30.0% for selected individual compounds.

A curve fit, based on the initial calibration, was established for quantitation for selected compounds. The coefficient of determination ( $r^2$ ) was greater than or equal to 0.990 .

Average relative response factors (RRF) for all system performance check compounds (SPCCs) were within method criteria.

## **IV. Continuing Calibration**

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 20.0% for all compounds.

Initial calibration verification (ICV) percent differences (%D) were less than or equal to 20.0% for all compounds.

All of the continuing calibration RRF values for all system performance check compounds (SPCCs) were within method criteria.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No semivolatile contaminants were found in the method blanks.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

All internal standard areas and retention times were within QC limits.

## **XI. Target Compound Identifications**

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XII. Compound Quantitation and CRQLs**

All compound quantitation and CRQLs were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XIII. Tentatively Identified Compounds (TICs)**

Tentatively identified compounds were not reported by the laboratory.

## **XIV. System Performance**

The system performance was within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XV. Overall Assessment**

Data flags have been summarized at the end of the report.

**Moffett Airfield, MFA Site 1, CTO 86**  
**Semivolatiles - Data Qualification Summary - SDG 05D061**

No Sample Data Qualified in this SDG

**Moffett Airfield, MFA Site 1, CTO 86**  
**Semivolatiles - Laboratory Blank Data Qualification Summary - SDG 05D061**

No Sample Data Qualified in this SDG



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Airfield, MFA Site 1, CTO 86  
**Collection Date:** April 11 through April 12, 2005  
**LDC Report Date:** May 25, 2005  
**Matrix:** Water  
**Parameters:** Chlorinated Pesticides  
**Validation Level:** EPA Level III & IV  
**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 05D061

**Sample Identification**

86-S1-110  
86-S1-112  
86-S1-113  
86-S1-114\*\*  
86-S1-115  
86-S1-110MS  
86-S1-110MSD

\*\*Indicates sample underwent EPA Level IV review.

## Introduction

This data review covers 7 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8081A for Chlorinated Pesticides.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XIV.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/ECD Instrument Performance Check**

Instrument performance was acceptable unless noted otherwise under initial calibration and continuing calibration sections.

## **III. Initial Calibration**

Initial calibration of single and multicomponent compounds was performed for the primary (quantitation) column and confirmation column as required by this method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

Retention time windows were evaluated and considered technically acceptable for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples on which a Level III review was performed.

## **IV. Continuing Calibration**

Continuing calibration was performed at required frequencies.

The percent differences (%D) of calibration factors in continuing standard mixtures were within the 15.0% QC limits.

Initial calibration verification (ICV) percent differences (%D) were less than or equal to 20.0% for all compounds.

Retention time windows were evaluated and considered technically acceptable for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples on which a Level III review was performed.

The individual 4,4'-DDT and Endrin breakdowns were less than 15.0% .

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No chlorinated pesticide contaminants were found in the method blanks.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Pesticide Cleanup Checks**

### **a. Florisil Cartridge Check**

Florisil cleanup was not required and therefore not performed in this SDG.

### **b. GPC Calibration**

GPC cleanup was not required and therefore not performed in this SDG.

## **XI. Target Compound Identification**

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XII. Compound Quantitation and Reported CRQLs**

All compound quantitation and CRQLs were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XIII. Overall Assessment of Data**

Data flags are summarized at the end of this report.

#### **XIV. Field Duplicates**

Samples 86-S1-113 and 86-S1-114\*\* were identified as field duplicates. No chlorinated pesticides were detected in any of the samples.

#### **XV. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Airfield, MFA Site 1, CTO 86**  
**Chlorinated Pesticides - Data Qualification Summary - SDG 05D061**

No Sample Data Qualified in this SDG

**Moffett Airfield, MFA Site 1, CTO 86**  
**Chlorinated Pesticides - Laboratory Blank Data Qualification Summary - SDG 05D061**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Airfield, MFA Site 1, CTO 86  
**Collection Date:** April 11 through April 12, 2005  
**LDC Report Date:** May 25, 2005  
**Matrix:** Water  
**Parameters:** Polychlorinated Biphenyls  
**Validation Level:** EPA Level III & IV  
**Laboratory:** EMAX Laboratories, Inc.  
**Sample Delivery Group (SDG):** 05D061

**Sample Identification**

86-S1-110  
86-S1-112  
86-S1-113  
86-S1-114\*\*  
86-S1-115  
86-S1-110MS  
86-S1-110MSD

\*\*Indicates sample underwent EPA Level IV review.

## Introduction

This data review covers 7 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8082 for Polychlorinated Biphenyls.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XIV.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.



## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/ECD Instrument Performance Check**

Instrument performance data were not provided and therefore not reviewed.

## **III. Initial Calibration**

Initial calibration of multicomponent compounds was performed for the primary (quantitation) column as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

Retention time windows were evaluated and considered technically acceptable for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples on which a Level III review was performed.

## **IV. Continuing Calibration**

Continuing calibration was performed at required frequencies.

The percent differences (%D) of calibration factors in continuing standard mixtures were within the 15.0% QC limits.

Initial calibration verification (ICV) percent differences (%D) were less than or equal to 20.0% for all compounds.

Retention time windows were evaluated and considered technically acceptable for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples on which a Level III review was performed.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No polychlorinated biphenyl contaminants were found in the method blanks.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Pesticide Cleanup Checks**

### **a. Florisil Cartridge Check**

Florisil cleanup was not required and therefore not performed in this SDG.

### **b. GPC Calibration**

GPC cleanup was not required and therefore not performed in this SDG.

## **XI. Target Compound Identification**

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XII. Compound Quantitation and Reported CRQLs**

All compound quantitation and CRQLs were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XIII. Overall Assessment of Data**

Data flags are summarized at the end of this report.

## **XIV. Field Duplicates**

Samples 86-S1-113 and 86-S1-114\*\* were identified as field duplicates. No polychlorinated biphenyls were detected in any of the samples.

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Air Field, Site 1, CTO 86  
**Collection Date:** April 11 through April 12, 2005  
**LDC Report Date:** May 23, 2005  
**Matrix:** Water  
**Parameters:** Metals  
**Validation Level:** EPA Level III & IV  
**Laboratory:** EMAX Laboratories, Inc./Columbia Analytical Services, Inc.

**Sample Delivery Group (SDG):** 05D061/K2502714

**Sample Identification**

86-S1-110  
86-S1-112  
86-S1-113  
86-S1-114\*\*  
86-S1-115  
86-S1-110MS  
86-S1-110MSD  
86-S1-110DUP

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 8 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Methods 6010B and 7000 and EPA Method 200.8 for Metals. The metals analyzed were Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Lead, Mercury, Nickel, Selenium, Silver, Thallium, Vanadium, and Zinc.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

## III. Blanks

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. No contaminant concentrations were found in the initial, continuing and preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Beryllium Copper Nickel Selenium Thallium Zinc	0.00009 ug/L 0.0010 ug/L 0.031 ug/L 0.74 ug/L 0.00027 ug/L 0.006 ug/L	All samples in SDG 05D061/K2502714
ICB/CCB	Antimony	0.012 ug/L	86-S1-110
ICB/CCB	Beryllium Cadmium Cobalt Nickel Selenium Silver Thallium	0.02 ug/L 0.02 ug/L 0.0050 ug/L 0.495 ug/L 0.28 ug/L 0.01 ug/L 0.05 ug/L	86-S1-110 86-S1-112
ICB/CCB	Antimony	0.014 ug/L	86-S1-112 86-S1-113 86-S1-114** 86-S1-115

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
ICB/CCB	Arsenic Beryllium Cadmium Chromium Cobalt Copper Nickel Silver Thallium Zinc	0.097 ug/L 0.00990 ug/L 0.0108 ug/L 0.207 ug/L 0.0138 ug/L 0.0205 ug/L 0.022 ug/L 0.0150 ug/L 0.02500 ug/L 0.035 ug/L	86-S1-113 86-S1-114** 86-S1-115

Sample concentrations were compared to the maximum contaminant concentrations detected in the ICB/CCB/PBs. The sample concentrations were either not detected or were significantly greater ( >5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
86-S1-110	Antimony Beryllium Selenium	0.382 ug/L 0.00386 ug/L 0.48 ug/L	0.382U ug/L 0.00386U ug/L 0.48U ug/L
86-S1-112	Antimony Beryllium Selenium Thallium	0.296 ug/L 0.00479 ug/L 0.68 ug/L 0.00288 ug/L	0.296U ug/L 0.00479U ug/L 0.68U ug/L 0.00288U ug/L
86-S1-113	Antimony Beryllium Selenium Silver	0.300 ug/L 0.00216 ug/L 0.46 ug/L 0.0027 ug/L	0.300U ug/L 0.00216U ug/L 0.46U ug/L 0.0027U ug/L
86-S1-114**	Antimony Beryllium Selenium Silver	0.0306 ug/L 0.00121 ug/L 0.52 ug/L 0.0029 ug/L	0.0306U ug/L 0.00121U ug/L 0.52U ug/L 0.0029U ug/L
86-S1-115	Antimony Selenium Silver	0.414 ug/L 0.84 ug/L 0.0017 ug/L	0.414U ug/L 0.84U ug/L 0.0017U ug/L

#### IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
ICB/CCB	Arsenic Beryllium Cadmium Chromium Cobalt Copper Nickel Silver Thallium Zinc	0.097 ug/L 0.00990 ug/L 0.0108 ug/L 0.207 ug/L 0.0138 ug/L 0.0205 ug/L 0.022 ug/L 0.0150 ug/L 0.02500 ug/L 0.035 ug/L	86-S1-113 86-S1-114** 86-S1-115

Sample concentrations were compared to the maximum contaminant concentrations detected in the ICB/CCB/PBs. The sample concentrations were either not detected or were significantly greater ( >5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
86-S1-110	Antimony Beryllium Selenium	0.382 ug/L 0.00386 ug/L 0.48 ug/L	0.382U ug/L 0.00386U ug/L 0.48U ug/L
86-S1-112	Antimony Beryllium Selenium Thallium	0.296 ug/L 0.00479 ug/L 0.68 ug/L 0.00288 ug/L	0.296U ug/L 0.00479U ug/L 0.68U ug/L 0.00288U ug/L
86-S1-113	Antimony Beryllium Selenium Silver	0.300 ug/L 0.00216 ug/L 0.48 ug/L 0.0027 ug/L	0.300U ug/L 0.00216U ug/L 0.46U ug/L 0.0027U ug/L
86-S1-114**	Antimony Beryllium Selenium Silver	0.306 ug/L 0.00121 ug/L 0.52 ug/L 0.0029 ug/L	0.306U ug/L 0.00121U ug/L 0.52U ug/L 0.0029U ug/L
86-S1-115	Antimony Selenium Silver	0.414 ug/L 0.84 ug/L 0.0017 ug/L	0.414U ug/L 0.84U ug/L 0.0017U ug/L

#### IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

## V. Matrix Spike Analysis

Matrix spike (MS) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	%R (Limits)	Flag	A or P
86-S1-110MS (All samples in SDG 05D061/K2502714)	Arsenic Beryllium Copper	56 (75-125) 69 (75-125) 73 (75-125)	J (all detects) UJ (all non-detects)	A

## VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Internal Standards

All internal standard percent recoveries (%R) were within QC limits for samples on which a EPA Level IV review was performed with the following exceptions:

Sample	Internal Standard	%R (Limits)	Analyte	Flag	A or P
86-S1-114**	Indium-115	160.3 (60-125)	Antimony Barium	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	P

Raw data were not evaluated for the samples reviewed by Level III criteria.

## IX. Furnace Atomic Absorption QC

All graphite furnace atomic absorption QC were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for samples reviewed by Level III criteria.

## X. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria were met.



## XI. Sample Result Verification

All sample result verification met validation criteria with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
All samples in SDG 05D061/K2502714	Antimony	Laboratory method detection limit reported at 0.12 ug/L	MDL should be reported at 0.05 ug/L per the QAPP.	None	P
All samples in SDG 05D061/K2502714	Barium	Laboratory method detection limit reported at 0.60 ug/L	MDL should be reported at 0.05 ug/L per the QAPP.	None	P

Raw data were not evaluated for samples reviewed by Level III criteria.

## XII. Overall Assessment of Data

Data flags have been summarized at the end of this report.

## XIII. Field Duplicates

Samples 86-S1-113 and 86-S1-114\*\* were identified as field duplicates. No metals were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD
	86-S1-113	86-S1-114**	
Antimony	0.300	0.306	2
Arsenic	1.550	1.630	5
Barium	74.3	73.4	1
Beryllium	0.00216	0.00121	56
Cadmium	0.2700	0.2940	9
Chromium	0.375	0.283	28
Cobalt	4.6700	6.3700	31
Copper	0.5280	0.5730	8
Lead	0.012	0.013	8

Compound	Concentration (ug/L)		RPD
	86-S1-113	86-S1-114**	
Nickel	87.9	99.0	12
Selenium	0.46	0.52	12
Silver	0.0027	0.0029	7
Thallium	0.02780	0.02680	4
Zinc	13.1	13.2	1

#### XIV. Field Blanks

No field blanks were identified in this SDG.

**Moffett Air Field, Site 1, CTO 86**  
**Metals - Data Qualification Summary - SDG 05D061/K2502714**

SDG	Sample	Analyte	Flag	A or P	Reason
05D061/ K2502714	86-S1-110 86-S1-112 86-S1-113 86-S1-114** 86-S1-115	Arsenic Beryllium Copper	J (all detects) UJ (all non-detects)	A	Matrix spike analysis (%R)
05D061/ K2502714	86-S1-114**	Antimony  Barium	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	P	Internal standards (%R)
05D061/ K2502714	86-S1-110 86-S1-112 86-S1-113 86-S1-114** 86-S1-115	Antimony Barium	None None	P	Sample result verification

**Moffett Air Field, Site 1, CTO 86**  
**Metals - Laboratory Blank Data Qualification Summary - SDG 05D061/K2502714**

SDG	Sample	Analyte	Modified Final Concentration	A or P
05D061/ K2502714	86-S1-110	Antimony Beryllium Selenium	0.382U ug/L 0.00386U ug/L 0.48U ug/L	A
05D061/ K2502714	86-S1-112	Antimony Beryllium Selenium Thallium	0.296U ug/L 0.00479U ug/L 0.68U ug/L 0.00288U ug/L	A
05D061/ K2502714	86-S1-113	Antimony Beryllium Selenium Silver	0.300U ug/L 0.00216U ug/L 0.46U ug/L 0.0027U ug/L	A
05D061/ K2502714	86-S1-114**	Antimony Beryllium Selenium Silver	0.306U ug/L 0.00121U ug/L 0.52U ug/L 0.0029U ug/L	A
05D061/ K2502714	86-S1-115	Antimony Selenium Silver	0.414U ug/L 0.84U ug/L 0.0017U ug/L	A

## **VII. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Pesticide Cleanup Checks**

### **a. Florisil Cartridge Check**

Florisil cleanup was not required and therefore not performed in this SDG.

### **b. GPC Calibration**

GPC cleanup was not required and therefore not performed in this SDG.

## **XI. Target Compound Identification**

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XII. Compound Quantitation and Reported CRQLs**

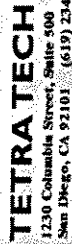
All compound quantitation and CRQLs were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XIII. Overall Assessment of Data**

Data flags are summarized at the end of this report.

## **XIV. Field Duplicates**

Samples 86-S1-113 and 86-S1-114\*\* were identified as field duplicates. No polychlorinated biphenyls were detected in any of the samples.



NUMBER 10351

## CHAIN-OF-CUSTODY RECORD

[illegible]

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management



LABORATORIES, INC.

1835 W. 205th Street

Torrance, CA 90501

Tel: (310) 618-8889

Fax: (310) 618-0818

Date: 05-09-2005

EMAX Batch No.: 05D053

Attn: Lynn Jefferson

Tetra Tech FW, Inc.

1940 E Deere Ave, Suite 200

Santa Ana CA 92705

Subject: Laboratory Report

Project: MFA, Site 1, CTO 86

-----

Enclosed is the Laboratory report for samples received on  
04/12/05. The data reported include :

Sample ID	Control #	Col Date	Matrix	Analysis
86-S1-121	D053-01	04/11/05	WATER	VOLATILE ORGANICS BY GC/MS
86-S1-108	D053-02	04/11/05	WATER	VOLATILE ORGANICS BY GC/MS PESTICIDES ORGANOCHLORINE POLYCHLORINATED BIPHENYLS (PCBS) DISSOLVED METALS MERCURY DISSOLVED
86-S1-109	D053-03	04/11/05	WATER	SEMIVOLATILE ORGANICS BY GC/MS VOLATILE ORGANICS BY GC/MS PESTICIDES ORGANOCHLORINE POLYCHLORINATED BIPHENYLS (PCBS) DISSOLVED METALS MERCURY DISSOLVED SEMIVOLATILE ORGANICS BY GC/MS

Note: Dissolved Metals was subcontracted to Columbia Analytical Services, Inc.

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning  
these results.

Sincerely yours,

Kam Y. Pang, Ph.D.  
Laboratory Director

**CASE NARRATIVE**

**CLIENT:** TETRA TECH FW, INC.  
**PROJECT:** MFA, SITE 1, CTO 86  
**SDG:** 05D053

**SW 5030B/8260B  
VOLATILE ORGANICS BY GC/MS**

Three (3) water samples were received on 04/12/05 for Volatile Organic analysis by Method 5030B/8260B in accordance with USEPA SW846, 3<sup>rd</sup> ed.

**1. Holding Time**

Analytical holding time was met.

**2. Tuning and Calibration**

Tuning and calibration were carried out at 12-hour interval. All QC requirements were met.

**3. Method Blank**

Method blank was free of contamination at the reporting limit.

**4. Surrogate Recovery**

Recoveries were within QC limit.

**5. Lab Control Sample/Lab Control Sample Duplicate**

Recoveries were within QC limit.

**6. Matrix Spike/Matrix Spike Duplicate**

No MS/MSD sample was designated in this SDG.

**7. Sample Analysis**

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

SW 50308/82608  
VOLATILE ORGANICS BY GC/MS

```
=====
Client   : TETRA TECH FW, INC.      Date Collected: 04/11/05
Project  : MFA, SITE 1, CTO 86      Date Received: 04/12/05
Batch No. : 05D053                  Date Extracted: 04/15/05 04:11
Sample ID: 86-S1-121                Date Analyzed: 04/15/05 04:11
Lab Samp ID: D053-01                 Dilution Factor: 1
Lab File ID: RDC332                  Matrix : WATER
Ext Btch ID: V067025                 % Moisture : NA
Calib. Ref.: RCC892                  Instrument ID : T-067
=====
```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	1	2
1,1,1-TRICHLOROETHANE	ND	1	2
1,1,2,2-TETRACHLOROETHANE	ND	1	2
1,1,2-TRICHLOROETHANE	ND	1	2
1,1-DICHLOROETHANE	ND	1	2
1,1-DICHLOROETHENE	ND	1	2
1,1-DICHLOROPROPENE	ND	1	2
1,2,3-TRICHLOROBENZENE	ND	1	2
1,2,3-TRICHLOROPROPANE	ND	1	2
1,2,4-TRICHLOROBENZENE	ND	1	2
1,2,4-TRIMETHYLBENZENE	ND	1	2
1,2-DIBROMO-3-CHLOROPROPANE	ND	1	2
1,2-DICHLOROBENZENE	ND	1	2
1,2-DICHLOROETHANE	ND	1	2
1,2-DICHLOROPROPANE	ND	1	2
1,3,5-TRIMETHYLBENZENE	ND	1	2
1,3-DICHLOROBENZENE	ND	1	2
1,3-DICHLOROPROPANE	ND	1	2
1,4-DICHLOROBENZENE	ND	1	2
2,2-DICHLOROPROPANE	ND	1	2
2-BUTANONE	ND	1	2
2-CHLOROTOLUENE	ND	1	2
2-HEXANONE	ND	1	2
4-CHLOROTOLUENE	ND	1	2
4-METHYL-2-PENTANONE	ND	1	2
ACETONE	ND	1	2
BENZENE	ND	1	2
BROMOBENZENE	ND	1	2
BROMOCHLOROMETHANE	ND	1	2
BROMODICHLOROMETHANE	ND	1	2
BROMOFORM	ND	1	2
BROMOMETHANE	ND	1	2
CARBON DISULFIDE	ND	1	2
CARBON TETRACHLORIDE	ND	1	2
CHLOROBENZENE	ND	1	2
CHLOROETHANE	ND	1	2
CHLOROFORM	ND	1	2
CHLOROMETHANE	ND	1	2
CIS-1,2-DICHLOROETHENE	ND	1	2
CIS-1,3-DICHLOROPROPENE	ND	1	2
DIBROMOCHLOROMETHANE	ND	1	2
DIBROMOMETHANE	ND	1	2
DICHLORODIFLUOROMETHANE	ND	1	2
ETHYLBENZENE	ND	1	2
HEXACHLOROBUTADIENE	ND	1	2
ISOPROPYL BENZENE	ND	1	2
M/P-XYLENES	ND	1	2
METHYLENE CHLORIDE	ND	1	2
N-BUTYLBENZENE	ND	1	2
N-PROPYLBENZENE	ND	1	2
NAPHTHALENE	ND	1	2
O-XYLENE	ND	1	2
P-ISOPROPYLTOLUENE	ND	1	2
SEC-BUTYLBENZENE	ND	1	2
STYRENE	ND	1	2
TERT-BUTYLBENZENE	ND	1	2
TETRACHLOROETHYLENE	ND	1	2
TOLUENE	ND	1	2
TRANS-1,2-DICHLOROETHENE	ND	1	2
TRANS-1,3-DICHLOROPROPENE	ND	1	2
TRICHLOROETHENE	ND	1	2
TRICHLOROFLUOROMETHANE	ND	1	2
VINYL CHLORIDE	ND	1	2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	99	62-139
TOLUENE-D8	109	75-125
BROMOFLUOROBENZENE	110	75-125

R.L. : Reporting Limit  
 \* : Out of QC  
 E : Exceeded calibration range  
 B : Found in associated method blank  
 J : Value between R.L. and MDL  
 D : Value from dilution analysis



SW 5030B/8260B  
VOLATILE ORGANICS BY GC/MS

=====  
Client : TETRA TECH FW, INC. Date Collected: 04/11/05  
Project : MFA, SITE 1, CTO 86 Date Received: 04/12/05  
Batch No. : 05D053 Date Extracted: 04/15/05 04:48  
Sample ID: 86-S1-108 Date Analyzed: 04/15/05 04:48  
Lab Samp ID: D053-02 Dilution Factor: 1  
Lab File ID: RDC333 Matrix : WATER  
Ext Btch ID: V067D25 % Moisture : NA  
Calib. Ref.: RCC892 Instrument ID : T-067  
=====

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	.5	.2
1,1,1-TRICHLOROETHANE	ND	.5	.2
1,1,2,2-TETRACHLOROETHANE	ND	.1	.2
1,1,2-TRICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHENE	ND	.5	.2
1,1-DICHLOROPROPENE	ND	.5	.2
1,2,3-TRICHLOROBENZENE	ND	.5	.2
1,2,3-TRICHLOROPROPANE	ND	.5	.2
1,2,4-TRICHLOROBENZENE	ND	.5	.2
1,2,4-TRIMETHYLBENZENE	ND	.5	.2
1,2-DIBROMO-3-CHLOROPROPANE	ND	.5	.2
1,2-DICHLOROBENZENE	ND	.5	.2
1,2-DICHLOROETHANE	ND	.5	.2
1,2-DICHLOROPROPANE	ND	.5	.2
1,3,5-TRIMETHYLBENZENE	ND	.5	.2
1,3-DICHLOROBENZENE	ND	.5	.2
1,3-DICHLOROPROPANE	ND	.5	.2
1,4-DICHLOROBENZENE	ND	.5	.2
2,2-DICHLOROPROPANE	ND	.5	.2
2-BUTANONE	ND	.5	.2
2-CHLOROTOLUENE	ND	.5	.2
2-HEXANONE	ND	.5	.2
4-CHLOROTOLUENE	ND	.5	.2
4-METHYL-2-PENTANONE	ND	.5	.2
ACETONE	ND	.5	.2
BENZENE	ND	.5	.2
BROMOBENZENE	ND	.5	.2
BROMOCHLOROMETHANE	ND	.5	.2
BROMODICHLOROMETHANE	ND	.5	.2
BROMOFORM	ND	.5	.2
BROMOMETHANE	ND	.5	.2
CARBON DISULFIDE	ND	.5	.2
CARBON TETRACHLORIDE	ND	.5	.2
CHLOROBENZENE	ND	.5	.2
CHLOROETHANE	ND	.5	.2
CHLOROFORM	ND	.5	.2
CHLOROMETHANE	ND	.5	.2
CIS-1,2-DICHLOROETHENE	ND	.5	.2
CIS-1,3-DICHLOROPROPENE	ND	.5	.2
DIBROMOCHLOROMETHANE	ND	.5	.2
DIBROMOMETHANE	ND	.5	.2
DICHLORODIFLUOROMETHANE	ND	.5	.2
ETHYLBENZENE	ND	.5	.2
HEXACHLOROBUTADIENE	ND	.5	.2
ISOPROPYL BENZENE	ND	.5	.2
M/P-XYLENES	ND	.5	.2
METHYLENE CHLORIDE	ND	.5	.2
N-BUTYLBENZENE	ND	.5	.2
N-PROPYLBENZENE	ND	.5	.2
NAPHTHALENE	ND	.5	.2
O-XYLENE	ND	.5	.2
P-ISOPROPYLTOLUENE	ND	.5	.2
SEC-BUTYLBENZENE	ND	.5	.2
STYRENE	ND	.5	.2
TERT-BUTYLBENZENE	ND	.5	.2
TETRACHLOROETHYLENE	ND	.5	.2
TOLUENE	ND	.5	.2
TRANS-1,2-DICHLOROETHENE	ND	.5	.2
TRANS-1,3-DICHLOROPROPENE	ND	.5	.2
TRICHLOROETHENE	ND	.5	.2
TRICHLOROFLUOROMETHANE	ND	.5	.2
VINYL CHLORIDE	ND	.5	.2
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
1,2-DICHLOROETHANE-D4	116	62-139	
TOLUENE-D8	104	75-125	
BROMOFLUOROBENZENE	105	75-125	

R.L. : Reporting limit  
\* : Out of QC  
E : Exceeded calibration range  
B : Found in associated method blank  
J : Value between R.L. and MDL  
D : Value from dilution analysis

SW 50308/82608  
VOLATILE ORGANICS BY GC/MS

```
=====
Client   : TETRA TECH FW, INC.      Date Collected: 04/11/05
Project  : MFA SITE 1, CTO 86       Date Received: 04/12/05
Batch No.: 05D053                  Date Extracted: 04/15/05 05:25
Sample ID: 86-S1-109               Date Analyzed: 04/15/05 05:25
Lab Samp ID: D053-03                Dilution Factor: 1
Lab File ID: RDC334                 Matrix      : WATER
Ext Btch ID: V067D25                % Moisture   : NA
Calib. Ref.: RCC892                 Instrument ID : T-067
=====
```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	.5	.2
1,1,1-TRICHLOROETHANE	ND	.5	.2
1,1,2,2-TETRACHLOROETHANE	ND	.5	.2
1,1,2-TRICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHENE	ND	.5	.2
1,1-DICHLOROPROPENE	ND	.5	.2
1,2,3-TRICHLOROBENZENE	ND	.5	.2
1,2,3-TRICHLOROPROPANE	ND	.5	.2
1,2,4-TRICHLOROBENZENE	ND	.5	.2
1,2,4-TRIMETHYLBENZENE	ND	.5	.2
1,2-DIBROMO-3-CHLOROPROPANE	ND	.5	.2
1,2-DICHLOROBENZENE	ND	.5	.2
1,2-DICHLOROETHANE	ND	.5	.2
1,2-DICHLOROPROPANE	ND	.5	.2
1,3,5-TRIMETHYLBENZENE	ND	.5	.2
1,3-DICHLOROBENZENE	ND	.5	.2
1,3-DICHLOROPROPANE	ND	.5	.2
1,4-DICHLOROBENZENE	ND	.5	.2
2,2-DICHLOROPROPANE	ND	.5	.2
2-BUTANONE	ND	10	.2
2-CHLOROTOLUENE	ND	.5	.2
2-HEXANONE	ND	10	.2
4-CHLOROTOLUENE	ND	.5	.2
4-METHYL-2-PENTANONE	ND	10	.2
ACETONE	ND	10	.2
BENZENE	ND	.5	.2
BROMOBENZENE	ND	.5	.2
BROMOCHLOROMETHANE	ND	.5	.2
BROMODICHLOROMETHANE	ND	.5	.2
BROMOFORM	ND	.5	.2
BROMOMETHANE	ND	.5	.2
CARBON DISULFIDE	ND	.5	.2
CARBON TETRACHLORIDE	ND	.5	.2
CHLOROBENZENE	ND	.5	.2
CHLOROETHANE	ND	.5	.2
CHLOROFORM	ND	.5	.2
CHLOROMETHANE	ND	.5	.2
CIS-1,2-DICHLOROETHENE	ND	.5	.2
CIS-1,3-DICHLOROPROPENE	ND	.5	.2
DIBROMOCHLOROMETHANE	ND	.5	.2
DIBROMOMETHANE	ND	.5	.2
DICHLORODIFLUOROMETHANE	ND	.5	.2
ETHYLBENZENE	ND	.5	.2
HEXACHLOROBUTADIENE	ND	.5	.2
ISOPROPYL BENZENE	ND	.5	.2
M/P-XYLENES	ND	.5	.2
METHYLENE CHLORIDE	ND	.5	.2
N-BUTYLBENZENE	ND	.5	.2
N-PROPYLBENZENE	ND	.5	.2
NAPHTHALENE	ND	.5	.2
O-XYLENE	ND	.5	.2
P-ISOPROPYLTOLUENE	ND	.5	.2
SEC-BUTYLBENZENE	ND	.5	.2
STYRENE	ND	.5	.2
TERT-BUTYLBENZENE	ND	.5	.2
TETRACHLOROETHYLENE	ND	.5	.2
TOLUENE	ND	.5	.2
TRANS-1,2-DICHLOROETHENE	ND	.5	.2
TRANS-1,3-DICHLOROPROPENE	ND	.5	.2
TRICHLOROETHENE	ND	.5	.2
TRICHLOROFLUOROMETHANE	ND	.5	.2
VINYL CHLORIDE	ND	.5	.2
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
1,2-DICHLOROETHANE-D4	113	62-139	
TOLUENE-DB	105	75-125	
BROMOFLUOROBENZENE	106	75-125	

R.L. : Reporting limit  
 \* : Out of QC  
 E : Exceeded calibration range  
 B : Found in associated method blank  
 J : Value between R.L. and MDL  
 D : Value from dilution analysis

**CASE NARRATIVE**

**CLIENT:** TETRA TECH EMI  
**PROJECT:** MFA, SITE 1, CTO 86  
**SDG:** 05D053

**SW 3520C/8270C  
SEMI VOLATILE ORGANICS BY GC/MS**

Two (2) water samples were received on 04/12/05 for Semi Volatile Organic analysis by Method 3520C/8270C in accordance with USEPA SW846, 3<sup>rd</sup> ed.

**1. Holding Time**

Analytical holding time was met.

**2. Tuning and Calibration**

Tuning and calibration were carried out at 12-hour interval. All QC requirements were met.

**3. Method Blank**

Method blank was free of contamination at the reporting limit.

**4. Surrogate Recovery**

Recoveries were within QC limit.

**5. Lab Control Sample/Lab Control Sample Duplicate**

Recoveries were within QC limit.

**6. Matrix Spike/Matrix Spike Duplicate**

No MS/MSD sample was designated in this SDG.

**7. Sample Analysis**

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

SW 3520C/8270C  
SEMI VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC. Date Collected: 04/11/05  
Project : MFA SITE 1, CTO 86 Date Received: 04/12/05  
Batch No. : 050053 Date Extracted: 04/16/05 13:00  
Sample ID: 86-S1-108 Date Analyzed: 04/19/05 14:54  
Lab Smp ID: D053-02 Dilution Factor: .94  
Lab File ID: RDH114 Matrix : WATER  
Ext. Btch ID: SVD016W % Moisture : NA  
Calib. Ref.: RCH307 Instrument ID : 1-041

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	19	9.4
2,4-DINITROTOLUENE	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	5.6
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	9.4	4.7
2-NITROANILINE	ND	19	5.6
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	9.4	4.7
4,6-DINITRO-2-METHYLPHENOL	ND	19	9.4
4-BROMOPHENYL-PHENYL ETHER	ND	19	6.6
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	9.4	4.7
4-NITROPHENOL	ND	19	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	9.4	4.7
BIS(2-ETHYLHEXYL)PHTHALATE	ND	19	9.4
BUTYL BENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHTHALATE	ND	9.4	4.7
DI-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	9.4	4.7
DIETHYLPHTHALATE	ND	19	5.6
DIMETHYLPHTHALATE	ND	19	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	9.4	4.7
HEXACHLORO BENZENE	ND	19	5.6
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSODIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	9.4	4.7
PENTACHLOROPHENOL	ND	19	9.4
PHENANTHRENE	ND	19	5.6
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	4.7
ACETOPHENONE	ND	9.4	5.3
ATRAZINE	ND	19	5.4
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	63	25-134
2-FLUOROBIPHENYL	56	43-123
2-FLUOROPHENOL	49	25-125
NITROBENZENE-D5	54	25-125
PHENOL-D5	56	25-125
TERPHENYL-D14	74	42-126

RL: Reporting Limit  
(1): Cannot be separated from 3-Methylphenol  
(2): Cannot be separated from Diphenylamine

SW 3520C/8270C  
SEMI VOLATILE ORGANICS BY GC/MS

```

=====
Client       : TETRA TECH FW, INC.      Date Collected: 04/11/05
Project      : MFA, SITE 1, CTO 86     Date Received: 04/12/05
Batch No.    : 05D053                  Date Extracted: 04/16/05 13:00
Sample ID    : 86-S1-109                Date Analyzed: 04/19/05 15:21
Lab Smp ID   : D053-03                  Dilution Factor: 94
Lab File ID  : RDH115                   Matrix          : WATER
Ext Btch ID  : SVD016W                  % Moisture      : NA
Calib. Ref.  : RCH307                   Instrument ID   : T-041
=====

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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	19	9.4
2,4-DINITROTOLUENE	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	5.6
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	9.4	4.7
2-NITROANILINE	ND	19	5.6
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	9.4	4.7
4,6-DINITRO-2-METHYLPHENOL	ND	19	9.4
4-BROMOPHENYL-PHENYL ETHER	ND	19	6.6
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	9.4	4.7
4-NITROPHENOL	ND	19	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	9.4	4.7
BIS(2-ETHYLHEXYL)PHTHALATE	ND	19	9.4
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHTHALATE	ND	9.4	4.7
DI-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	9.4	4.7
DIETHYLPHTHALATE	ND	19	5.6
DIMETHYLPHTHALATE	ND	19	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	9.4	4.7
HEXACHLORO BENZENE	ND	19	5.6
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSODIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	9.4	4.7
PENTACHLOROPHENOL	ND	19	9.4
PHENANTHRENE	ND	19	5.6
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	4.7
ACETOPHENONE	ND	9.4	2.3
ATRAZINE	ND	19	9.4
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	74	25-134
2-FLUOROBIPHENYL	71	43-125
2-FLUOROPHENOL	67	25-125
NITROBENZENE-D5	69	32-125
PHENOL-D5	73	25-125
TERPHENYL-D14	87	42-126

RL: Reporting Limit  
(1): Cannot be separated from 3-Methylphenol  
(2): Cannot be separated from Diphenylamine

**CASE NARRATIVE**

**CLIENT:** TETRA TECH FW, INC.  
**PROJECT:** MFA, SITE 1, CTO 86  
**SDG:** 05D053

**SW3520C/8081A  
PESTICIDES**

Two (2) water samples were received on 04/12/05 for Pesticides analysis by Method 3520C/8081A in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3<sup>rd</sup> ed.

**1. Holding Time**

Analytical holding time was met.

**2. Instrument Performance and Calibration**

Initial calibration was at five-point for Pesticides, all RSDs were within 20%. All continue calibrations were analyzed at 12 hour interval and mean recoveries were within 85-115%. Endrin and DDT breakdown were within QC limits.

**3. Method Blank**

Method blank was free of contamination at the reporting limit.

**4. Surrogate Recovery**

Recoveries were within QC limit.

**5. Lab Control Sample/Lab Control Sample Duplicate**

All recoveries were within QC limits.

**6. Matrix Spike/Matrix Spike Duplicate**

No MS/MSD sample was designated in this SDG.

**7. Sample Analysis**

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

When sample results are confirmed by a second column, the relative percentage difference (RPD) between the two results is calculated. If RPD is less than 40%, and no evidence of chromatographic problems, the higher result is reported. If RPD is greater than 40%, the chromatogram is checked for anomalies and results are selected based on the best professional judgement. If no evidence of any chromatographic problems, the higher result is reported.

SW3520C/8081A  
PESTICIDES

```

=====
Client      : TETRA TECH FW, INC.      Date Collected: 04/11/05
Project     : MFA, SITE 1, CTD 86      Date Received: 04/12/05
Batch No.   : 05D053                  Date Extracted: 04/14/05 13:00
Sample ID   : 86-S1-108               Date Analyzed: 04/18/05 15:38
Lab Samp ID : D053-02                 Dilution Factor: .94
Lab File ID : SD18010A                Matrix       : WATER
Ext Btch ID : CPD012W                 % Moisture    : NA
Calib. Ref.: SD18003A                 Instrument ID : GCT008
=====

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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ALPHA-BHC	(ND) ND	.047	.0094 .0094
GAMMA-BHC (LINDANE)	(ND) ND	.047	.0094 .0094
BETA-BHC	(ND) ND	.047	.0094 .0094
HEPTACHLOR	(ND) ND	.047	.0094 .0094
DELTA-BHC	(ND) ND	.047	.0094 .0094
ALDRIN	(ND) ND	.047	.0094 .0094
HEPTACHLOR EPOXIDE	(ND) ND	.047	.0094 .0094
GAMMA-CHLORDANE	(ND) ND	.047	.0094 .0094
ALPHA-CHLORDANE	(ND) ND	.047	.0094 .0094
ENDOSULFAN I	(ND) ND	.047	.028 .028
4,4'-DDE	(ND) ND	.094	.028 .028
DIELDRIN	(ND) ND	.19	.094 .094
ENDRIN	(ND) ND	.094	.019 .019
4,4'-DDD	(ND) ND	.094	.028 .028
ENDOSULFAN II	(ND) ND	.094	.019 .019
4,4'-DDT	(ND) ND	.094	.019 .019
ENDRIN ALDEHYDE	(ND) ND	.094	.019 .019
ENDOSULFAN SULFATE	(ND) ND	.094	.019 .019
ENDRIN KETONE	(ND) ND	.094	.019 .019
METHOXYCHLOR	(ND) ND	.47	.094 .094
TOXAPHENE	(ND) ND	2.8	1.2 1.2
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
TETRACHLORO-M-XYLENE	80 (83)	30-130	
DECACHLOROBIPHENYL	(86) 86	30-130	

RL : Reporting limit  
Left of | is related to first column ; Right of | related to second column  
( ) included the reported column

SW3520C/8081A  
 PESTICIDES

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=====
Client      : TETRA TECH FW, INC.      Date Collected: 04/11/05
Project     : MFA, SITE 1, CTO 86      Date Received: 04/12/05
Batch No.   : 05D053                  Date Extracted: 04/14/05 13:00
Sample ID   : 86-S1-109               Date Analyzed: 04/18/05 16:04
Lab Samp ID : 0053-03                 Dilution Factor: .95
Lab File ID : SD18011A                Matrix       : WATER
Ext Btch ID : CPD012W                 % Moisture    : NA
Calib. Ref. : SD18003A                Instrument ID : GCT008
=====
  
```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ALPHA-BHC	(ND) ND	.048	.0095 .0095
GAMMA-BHC (LINDANE)	(ND) ND	.048	.0095 .0095
BETA-BHC	(ND) .095	.048	.0095 .0095
HEPTACHLOR	(ND) ND	.048	.0095 .0095
DELTA-BHC	(ND) ND	.048	.0095 .0095
ALDRIN	(ND) ND	.048	.0095 .0095
HEPTACHLOR EPOXIDE	(ND) ND	.048	.0095 .0095
GAMMA-CHLORDANE	(ND) ND	.048	.0095 .0095
ALPHA-CHLORDANE	(ND) ND	.048	.0095 .0095
ENDOSULFAN I	(ND) ND	.048	.028 .028
4,4'-DDE	(ND) ND	.095	.028 .028
DIELDRIN	(ND) ND	.19	.095 .095
ENDRIN	(ND) ND	.095	.019 .019
4,4'-DDD	(ND) ND	.095	.028 .028
ENDOSULFAN II	(ND) ND	.095	.019 .019
4,4'-DDT	(ND) ND	.095	.019 .019
ENDRIN ALDEHYDE	(ND) ND	.095	.019 .019
ENDOSULFAN SULFATE	(ND) ND	.095	.019 .019
ENDRIN KETONE	(ND) ND	.095	.019 .019
METHOXYCHLOR	(ND) ND	.48	.095 .095
TOXAPHENE	(ND) ND	2.8	1.2 1.2
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
TETRACHLORO-M-XYLENE	71 (82)	30-130	
DECACHLOROBIPHENYL	(83) 82	30-130	

RL : Reporting limit  
 Left of | is related to first column ; Right of | related to second column  
 ( ) included the reported column



**CASE NARRATIVE**

**CLIENT:** TETRA TECH FW, INC.  
**PROJECT:** MFA, SITE 1, CTO 86  
**SDG:** 05D053

**SW3520C/8082  
PCBs**

Two (2) water samples were received on 04/12/05 for PCBs analysis by Method 3520C/8082 in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3<sup>rd</sup> ed.

**1. Holding Time**

Analytical holding time was met.

**2. Instrument Performance and Calibration**

Initial calibration was five points for PCB-1016 and PCB-1260, all RSDs were within 20%. All continue calibrations were analyzed at 12 hour interval and all recoveries were within 85-115%.

**3. Method Blank**

Method blank was free of contamination at the reporting limit.

**4. Surrogate Recovery**

Recoveries were within QC limit.

**5. Lab Control Sample/Lab Control Sample Duplicate**

All recoveries were within QC limits.

**6. Matrix Spike/Matrix Spike Duplicate**

No MS/MSD sample was designated in this SDG.

**7. Sample Analysis**

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

SW3520C/8082  
PCBs

```
=====
Client      : TETRA TECH FW, INC.      Date Collected: 04/11/05
Project     : MFA, SITE 1, CTO 86      Date Received: 04/12/05
Batch No.   : 050053                   Date Extracted: 04/14/05 13:00
Sample ID   : 86-S1-108                 Date Analyzed: 04/18/05 15:38
Lab Samp ID : D053-02                   Dilution Factor: .94
Lab File ID : SD18010A                   Matrix      : WATER
Ext Btch ID : CPD012W                   % Moisture   : NA
Calib. Ref. : SD18006A                   Instrument ID : GCT008
=====
```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
PCB-1016	(ND) ND	.94	.24 .24
PCB-1221	(ND) ND	.94	.24 .24
PCB-1232	(ND) ND	.94	.24 .24
PCB-1242	(ND) ND	.94	.24 .24
PCB-1248	(ND) ND	.94	.24 .24
PCB-1254	(ND) ND	.94	.24 .24
PCB-1260	(ND) ND	.94	.24 .24

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(72) 79	30-130
DECACHLOROBIPHENYL	(96) 96	30-130

RL: Reporting Limit

Left of | is related to first column ; Right of | related to second column

( ) included the reported column

\* Out side of QC Limit

SW3520C/8082  
PCBs

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=====
Client      : TETRA TECH FW, INC.      Date Collected: 04/11/05
Project     : MFA, SITE 1, CTO 86      Date Received: 04/12/05
Batch No.   : 05D053                  Date Extracted: 04/14/05 13:00
Sample ID   : 86-S1-109                Date Analyzed: 04/18/05 16:04
Lab Samp ID : D053-03                  Dilution Factor: .95
Lab File ID : SD18011A                 Matrix       : WATER
Ext Btch ID : CPD012W                  % Moisture    : NA
Calib. Ref. : SD18006A                 Instrument ID : GCT008
=====

```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
PCB-1016	(ND) ND	.95	.24 .24
PCB-1221	(ND) ND	.95	.24 .24
PCB-1232	(ND) ND	.95	.24 .24
PCB-1242	(ND) ND	.95	.24 .24
PCB-1248	(ND) ND	.95	.24 .24
PCB-1254	(ND) ND	.95	.24 .24
PCB-1260	(ND) ND	.95	.24 .24

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(65) 75	30-130
DECACHLOROBIPHENYL	(92) 91	30-130

RL: Reporting Limit  
 Left of | is related to first column ; Right of | related to second column  
 ( ) included the reported column  
 \* Out side of QC Limit

**CASE NARRATIVE**

**CLIENT:** TETRA TECH FW, INC.

**PROJECT:** MFA, STIE 1, CTO 86

**SDG:** 05D053

**METHOD 7470A  
DISSOLVED MERCURY BY COLD VAPOR**

Two (2) water samples were received on 04/12/05 for Dissolved Mercury analysis by Method 7470A in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3<sup>rd</sup> edition.

**1. Holding Time**

Analysis met holding time criteria.

**2. Method Blank**

Method blank was free of contamination at the reporting limit.

**3. Lab Control Sample/Lab Control Sample Duplicate**

Lab control results were within QC limit.

**4. Serial Dilution / Post-Analytical Spike**

Sample D061-02 from another SDG was analyzed for serial dilution and post-analytical spike. All QC requirements were met.

**5. Matrix Spike/Matrix Spike Duplicate**

No MS/MSD sample was designated in this SDG.

**6. Sample Analysis**

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

Samples were analyzed at DF 20 due to matrix interference.

METHOD 7470A  
DISSOLVED MERCURY BY COLD VAPOR

Client : TETRA TECH FW, INC.  
Project : MFA, SITE 1, CTO 86  
Batch No. : 05D053

Matrix : WATER  
Instrument ID : 11047

SAMPLE ID	EMAX SAMPLE ID	RESULTS (ug/L)	DLF	MOIST	RL (ug/L)	MDL (ug/L)	Analysis DATE/TIME	Extraction DATE/TIME	LFID	CAL REF	PREP BATCH	Collection DATE/TIME	Received DATE/TIME
MSLK1W	HGD016WB	ND	1	NA	.2	.1	04/20/0517:08	04/19/0515:30	M47D015010	M47D015008	HGD016W	NA	04/19/05
LCS1W	HGD016WL	4.95	1	NA	.2	.1	04/20/0517:10	04/19/0515:30	M47D015011	M47D015008	HGD016W	NA	04/19/05
LCD1W	HGD016WC	4.91	1	NA	.2	.1	04/20/0517:12	04/19/0515:30	M47D015012	M47D015008	HGD016W	NA	04/19/05
86-S1-108	D053-02	ND	20	NA	4	2	04/20/0517:41	04/19/0515:30	M47D015024	M47D015020	HGD016W	04/11/05	04/12/05
86-S1-109	D053-03	ND	20	NA	4	2	04/20/0517:43	04/19/0515:30	M47D015025	M47D015020	HGD016W	04/11/05	04/12/05

RL: Reporting Limit

7003

**COLUMBIA ANALYTICAL SERVICES, INC.**

<b>Client:</b>	EMAX Laboratories, Inc.	<b>Service Request No.:</b>	K2502714
<b>Project:</b>	Moffett Site 1	<b>Date Received:</b>	4/14-15/05
<b>Sample Matrix:</b>	Water		

**CASE NARRATIVE**

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier III validation deliverables including summary forms and all of the associated raw data for each of the analyses. When appropriate to the method, method blank results have been reported with each analytical test.

**Sample Receipt**

Twelve water samples were received for analysis at Columbia Analytical Services between 4/14-15/05. No discrepancies were noted upon initial sample inspection. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

**Metals**

**Sample Notes and Discussion:**

Due to the high salinity of sample matrix, all samples required pre-treatment using reductive precipitation prior to analysis by ICP/MS EPA 200.8. Analysis of Selenium was performed by hydride EPA 7742 due to the saline sample matrix.

**Matrix Spike Recovery Exceptions:**

The matrix spike recoveries of Arsenic (56%), Beryllium (69%), and Copper (73%) for sample 86-S1-110 were outside the project specified control criteria of 75-125%. All the recoveries were within the CAS statistically derived limits for the reductive precipitation procedure (As 50-145%, Be 50-123% and Cu 50-120%). Based on the CAS statistical control limits, the recoveries observed are in the range expected for this procedure. Recovery in the Laboratory Control Sample (LCS) was acceptable, which indicates the analytical batch was in control. No further corrective action was appropriate.

The control criteria for matrix spike recoveries of Cobalt and Nickel for sample 86-S1-110 are not applicable. The analyte concentration in the sample was significantly higher than the added spike concentration, preventing accurate evaluation of the spike recovery.

No other anomalies associated with the analysis of these samples were observed.

Approved by \_\_\_\_\_

*ami spate*

Date \_\_\_\_\_

*5/5/05*

**Columbia Analytical Services**
**DISSOLVED METALS**

-1-

**INORGANIC ANALYSIS DATA SHEET**

Client: EMAX Laboratories, Inc.

Service Request: K2502714

Project No.: NA

Date Collected: 04/11/05

Project Name: Moffett Site 1

Date Received: 04/14/05

Matrix: WATER

Units: µg/L

Basis: NA

Sample Name: 86-S1-108

Lab Code: K2502714-001 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010B	50	50	1	4/21/05	4/25/05	50	U	
Antimony	200.8	1.000	0.120	1	4/21/05	4/25/05	0.396	B	
Arsenic	200.8	0.556	0.002	1	4/28/05	4/29/05	0.834		N
Barium	200.8	1.00	0.60	1	4/21/05	4/25/05	73.3		
Beryllium	200.8	0.02220	0.00009	1	4/28/05	4/29/05	0.00426	B	N
Cadmium	200.8	0.0222	0.0003	1	4/28/05	4/29/05	0.4120		
Chromium	200.8	0.222	0.002	1	4/28/05	4/29/05	0.053	B	
Cobalt	200.8	0.0222	0.0002	1	4/28/05	4/29/05	13.5		
Copper	200.8	0.1110	0.0009	1	4/28/05	4/29/05	0.6020		N
Lead	200.8	0.022	0.001	1	4/28/05	4/29/05	0.127		
Nickel	200.8	0.222	0.002	1	4/28/05	4/29/05	22.5		
Selenium	7742	1.00	0.30	2	4/21/05	5/2/05	0.46	B	
Silver	200.8	0.0222	0.0006	1	4/28/05	4/29/05	0.1920		
Thallium	200.8	0.02220	0.00007	1	4/28/05	4/29/05	0.08090		
Vanadium	6010B	10.0	6.0	1	4/21/05	4/25/05	6.0	U	
Zinc	200.8	0.556	0.002	1	4/28/05	4/29/05	3.270		

% Solids: 0.0

Comments:

*Columbia Analytical Services*

DISSOLVED METALS  
 -1-  
 INORGANIC ANALYSIS DATA SHEET

Client: EMAX Laboratories, Inc.

Service Request: K2502714

Project No.: NA

Date Collected: 04/11/05

Project Name: Moffett Site 1

Date Received: 04/14/05

Matrix: WATER

Units: µG/L

Basis: NA

Sample Name: 86-S1-109

Lab Code: K2502714-002 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010B	50	50	1	4/21/05	4/25/05	50	U	
Antimony	200.8	1.000	0.120	1	4/21/05	4/25/05	0.304	B	
Arsenic	200.8	0.556	0.002	1	4/28/05	4/29/05	4.610		N
Barium	200.8	1.00	0.60	1	4/21/05	4/25/05	145		
Beryllium	200.8	0.02220	0.00009	1	4/28/05	4/29/05	0.00883	B	N
Cadmium	200.8	0.0222	0.0003	1	4/28/05	4/29/05	0.0025	B	
Chromium	200.8	0.222	0.002	1	4/28/05	4/29/05	0.515		
Cobalt	200.8	0.0222	0.0002	1	4/28/05	4/29/05	1.9100		
Copper	200.8	0.1110	0.0009	1	4/28/05	4/29/05	0.2050		N
Lead	200.8	0.022	0.001	1	4/28/05	4/29/05	0.020	B	
Nickel	200.8	0.222	0.002	1	4/28/05	4/29/05	6.230		
Selenium	7742	1.00	0.30	2	4/21/05	5/2/05	0.46	B	
Silver	200.8	0.0222	0.0006	1	4/28/05	4/29/05	0.0013	B	
Thallium	200.8	0.02220	0.00007	1	4/28/05	4/29/05	0.00210	B	
Vanadium	6010B	10.0	6.0	1	4/21/05	4/25/05	6.0	U	
Zinc	200.8	0.556	0.002	1	4/28/05	4/29/05	0.913		

% Solids: 0.0

Comments:



## Columbia Analytical Services

 DISSOLVED METALS  
 -1-  
 INORGANIC ANALYSIS DATA SHEET

Client: EMAX Laboratories, Inc.

Service Request: K2502714

Project No.: NA

Date Collected: 04/11/05

Project Name: Moffett Site 1

Date Received: 04/14/05

Matrix: WATER

Units: µg/L

Basis: NA

Sample Name: 86-S1-110

Lab Code: K2502714-003 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010B	50	50	1	4/21/05	4/25/05	50	U	
Antimony	200.8	1.000	0.120	1	4/21/05	4/25/05	0.382	B	
Arsenic	200.8	0.556	0.002	1	4/28/05	4/29/05	2.200		N
Barium	200.8	1.00	0.60	1	4/21/05	4/25/05	83.8		
Beryllium	200.8	0.02220	0.00009	1	4/28/05	4/29/05	0.00386	B	N
Cadmium	200.8	0.0222	0.0003	1	4/28/05	4/29/05	0.4770		
Chromium	200.8	0.222	0.002	1	4/28/05	4/29/05	0.203	B	
Cobalt	200.8	0.0222	0.0002	1	4/28/05	4/29/05	9.9300		
Copper	200.8	0.1110	0.0009	1	4/28/05	4/29/05	0.8140		N
Lead	200.8	0.022	0.001	1	4/28/05	4/29/05	0.042		
Nickel	200.8	0.222	0.002	1	4/28/05	4/29/05	12.7		
Selenium	7742	1.00	0.30	2	4/21/05	5/2/05	0.48	B	
Silver	200.8	0.0222	0.0006	1	4/28/05	4/29/05	0.0273		
Thallium	200.8	0.02220	0.00007	1	4/28/05	4/29/05	0.07190		
Vanadium	6010B	10.0	6.0	1	4/21/05	4/25/05	6.0	U	
Zinc	200.8	0.556	0.002	1	4/28/05	4/29/05	2.520		

% Solids: 0.0

Comments:

**Columbia Analytical Services**

DISSOLVED METALS  
 -1-  
 INORGANIC ANALYSIS DATA SHEET

Client: EMAX Laboratories, Inc.

Service Request: K2502714

Project No.: NA

Date Collected: 04/11/05

Project Name: Moffett Site 1

Date Received: 04/14/05

Matrix: WATER

Units: µg/L

Basis: NA

Sample Name: 86-S1-112

Lab Code: K2502714-004 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010B	50	50	1	4/21/05	4/25/05	50	U	
Antimony	200.8	1.000	0.120	1	4/21/05	4/25/05	0.296	B	
Arsenic	200.8	0.556	0.002	1	4/28/05	4/29/05	4.540		N
Barium	200.8	1.00	0.60	1	4/21/05	4/25/05	184		
Beryllium	200.8	0.02220	0.00009	1	4/28/05	4/29/05	0.00479	B	N
Cadmium	200.8	0.0222	0.0003	1	4/28/05	4/29/05	0.0122	B	
Chromium	200.8	0.222	0.002	1	4/28/05	4/29/05	0.580		
Cobalt	200.8	0.0222	0.0002	1	4/28/05	4/29/05	6.0100		
Copper	200.8	0.1110	0.0009	1	4/28/05	4/29/05	0.2250		N
Lead	200.8	0.022	0.001	1	4/28/05	4/29/05	0.037		
Nickel	200.8	0.222	0.002	1	4/28/05	4/29/05	7.080		
Selenium	7742	1.00	0.30	2	4/21/05	5/2/05	0.68	B	
Silver	200.8	0.0222	0.0006	1	4/28/05	4/29/05	0.0243		
Thallium	200.8	0.02220	0.00007	1	4/28/05	4/29/05	0.00288	B	
Vanadium	6010B	10.0	6.0	1	4/21/05	4/25/05	6.3	B	
Zinc	200.8	0.556	0.002	1	4/28/05	4/29/05	1.340		

% Solids: 0.0

Comments:

**Columbia Analytical Services**

**DISSOLVED METALS**  
**-1-**  
**INORGANIC ANALYSIS DATA SHEET**

Client: EMAX Laboratories, Inc.

Service Request: K2502714

Project No.: NA

Date Collected: 04/11/05

Project Name: Moffett Site 1

Date Received: 04/14/05

Matrix: WATER

Units: µG/L

Basis: NA

Sample Name: 86-S1-113

Lab Code: K2502714-005 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010B	50	50	1	4/21/05	4/25/05	50	U	
Antimony	200.8	1.000	0.120	1	4/21/05	4/25/05	0.300	B	
Arsenic	200.8	0.556	0.002	1	4/28/05	4/29/05	1.550		N
Barium	200.8	1.00	0.60	1	4/21/05	4/25/05	74.3		
Beryllium	200.8	0.02220	0.00009	1	4/28/05	4/29/05	0.00216	B	N
Cadmium	200.8	0.0222	0.0003	1	4/28/05	4/29/05	0.2700		
Chromium	200.8	0.222	0.002	1	4/28/05	4/29/05	0.375		
Cobalt	200.8	0.0222	0.0002	1	4/28/05	4/29/05	4.6700		
Copper	200.8	0.1110	0.0009	1	4/28/05	4/29/05	0.5280		N
Lead	200.8	0.022	0.001	1	4/28/05	4/29/05	0.012	B	
Nickel	200.8	2.220	0.022	10	4/28/05	4/29/05	87.9		
Selenium	7742	1.00	0.30	2	4/21/05	5/2/05	0.46	B	
Silver	200.8	0.0222	0.0006	1	4/28/05	4/29/05	0.0027	B	
Thallium	200.8	0.02220	0.00007	1	4/28/05	4/29/05	0.02780		
Vanadium	6010B	10.0	6.0	1	4/21/05	4/25/05	6.0	U	
Zinc	200.8	0.556	0.002	1	4/28/05	4/29/05	13.1		

% Solids: 0.0

Comments:

*Columbia Analytical Services*

DISSOLVED METALS  
 -1-  
 INORGANIC ANALYSIS DATA SHEET

Client: EMAX Laboratories, Inc.

Service Request: K2502714

Project No.: NA

Date Collected: 04/11/05

Project Name: Moffett Site 1

Date Received: 04/14/05

Matrix: WATER

Units: µg/L

Basis: NA

Sample Name: 86-S1-114

Lab Code: K2502714-006 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010B	50	50	1	4/21/05	4/25/05	50	U	
Antimony	200.8	1.000	0.120	1	4/21/05	4/25/05	0.306	B	
Arsenic	200.8	0.556	0.002	1	4/28/05	4/29/05	1.630		N
Barium	200.8	1.00	0.60	1	4/21/05	4/25/05	73.4		
Beryllium	200.8	0.02220	0.00009	1	4/28/05	4/29/05	0.00121	B	N
Cadmium	200.8	0.0222	0.0003	1	4/28/05	4/29/05	0.2940		
Chromium	200.8	0.222	0.002	1	4/28/05	4/29/05	0.283		
Cobalt	200.8	0.0222	0.0002	1	4/28/05	4/29/05	6.3700		
Copper	200.8	0.1110	0.0009	1	4/28/05	4/29/05	0.5730		N
Lead	200.8	0.022	0.001	1	4/28/05	4/29/05	0.013	B	
Nickel	200.8	2.220	0.022	10	4/28/05	4/29/05	99.0		
Selenium	7742	1.00	0.30	2	4/21/05	5/2/05	0.52	B	
Silver	200.8	0.0222	0.0006	1	4/28/05	4/29/05	0.0029	B	
Thallium	200.8	0.02220	0.00007	1	4/28/05	4/29/05	0.02680		
Vanadium	6010B	10.0	6.0	1	4/21/05	4/25/05	6.0	U	
Zinc	200.8	0.556	0.002	1	4/28/05	4/29/05	13.2		

\* Solids: 0.0

Comments:

*Columbia Analytical Services*

DISSOLVED METALS  
 -1-  
 INORGANIC ANALYSIS DATA SHEET

Client: EMAX Laboratories, Inc.

Service Request: K2502714

Project No.: NA

Date Collected: 04/11/05

Project Name: Moffett Site 1

Date Received: 04/14/05

Matrix: WATER

Units: µG/L

Basis: NA

Sample Name: 86-S1-115

Lab Code: K2502714-007 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010B	50	50	1	4/21/05	4/25/05	50	U	
Antimony	200.8	1.000	0.120	1	4/21/05	4/25/05	0.414	B	
Arsenic	200.8	1.110	0.004	2	4/28/05	4/29/05	2.760		N
Barium	200.8	1.00	0.60	1	4/21/05	4/25/05	208		
Beryllium	200.8	0.04440	0.00018	2	4/28/05	4/29/05	0.01100	B	N
Cadmium	200.8	0.0444	0.0007	2	4/28/05	4/29/05	0.0007	U	
Chromium	200.8	0.444	0.004	2	4/28/05	4/29/05	26.0		
Cobalt	200.8	0.0444	0.0004	2	4/28/05	4/29/05	4.3300		
Copper	200.8	0.2220	0.0018	2	4/28/05	4/29/05	0.8310		N
Lead	200.8	0.044	0.002	2	4/28/05	4/29/05	0.100		
Nickel	200.8	2.220	0.022	10	4/28/05	4/29/05	497		
Selenium	7742	1.00	0.30	2	4/21/05	5/2/05	0.84	B	
Silver	200.8	0.0444	0.0011	2	4/28/05	4/29/05	0.0017	B	
Thallium	200.8	0.04440	0.00013	2	4/28/05	4/29/05	0.00013	U	
Vanadium	6010B	10.0	6.0	1	4/21/05	4/25/05	6.0	U	
Zinc	200.8	1.110	0.004	2	4/28/05	4/29/05	9.220		

% Solids: 0.0

Comments:

*Columbia Analytical Services*

DISSOLVED METALS  
 -1-  
 INORGANIC ANALYSIS DATA SHEET

Client: EMAX Laboratories, Inc.

Service Request: K2502714

Project No.: NA

Date Collected: 04/12/05

Project Name: Moffett Site 1

Date Received: 04/15/05

Matrix: WATER

Units: µg/L

Basis: NA

Sample Name: 86-S1-116

Lab Code: K2502714-008 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010B	50	50	1	4/21/05	4/25/05	50	U	
Antimony	200.8	1.000	0.120	1	4/21/05	4/25/05	0.214	B	
Arsenic	200.8	0.556	0.002	1	4/28/05	4/29/05	1.050		N
Barium	200.8	1.00	0.60	1	4/21/05	4/25/05	507		
Beryllium	200.8	0.02220	0.00009	1	4/28/05	4/29/05	0.00118	B	N
Cadmium	200.8	0.0222	0.0003	1	4/28/05	4/29/05	0.0003	U	
Chromium	200.8	0.222	0.002	1	4/28/05	4/29/05	0.366		
Cobalt	200.8	0.0222	0.0002	1	4/28/05	4/29/05	1.2800		
Copper	200.8	0.1110	0.0009	1	4/28/05	4/29/05	0.1420		N
Lead	200.8	0.022	0.001	1	4/28/05	4/29/05	0.007	B	
Nickel	200.8	0.222	0.002	1	4/28/05	4/29/05	4.020		
Selenium	7742	1.00	0.30	2	4/21/05	5/2/05	0.44	B	
Silver	200.8	0.0222	0.0006	1	4/28/05	4/29/05	0.0006	U	
Thallium	200.8	0.02220	0.00007	1	4/28/05	4/29/05	0.00007	U	
Vanadium	6010B	10.0	6.0	1	4/21/05	4/25/05	6.0	U	
Zinc	200.8	0.556	0.002	1	4/28/05	4/29/05	0.529	B	

‡ Solids: 0.0

Comments:

*Columbia Analytical Services*

DISSOLVED METALS  
 -1-  
 INORGANIC ANALYSIS DATA SHEET

Client: EMAX Laboratories, Inc.

Service Request: K2502714

Project No.: NA

Date Collected: 04/12/05

Project Name: Moffett Site 1

Date Received: 04/15/05

Matrix: WATER

Units: µG/L

Basis: NA

Sample Name: 86-S1-117

Lab Code: K2502714-009 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010B	50	50	1	4/21/05	4/25/05	50	U	
Antimony	200.8	1.000	0.120	1	4/21/05	4/25/05	0.204	B	
Arsenic	200.8	0.556	0.002	1	4/28/05	4/29/05	2.090		N
Barium	200.8	1.00	0.60	1	4/21/05	4/25/05	130		
Beryllium	200.8	0.02220	0.00009	1	4/28/05	4/29/05	0.00052	B	N
Cadmium	200.8	0.0222	0.0003	1	4/28/05	4/29/05	0.0383		
Chromium	200.8	0.222	0.002	1	4/28/05	4/29/05	0.263		
Cobalt	200.8	0.0222	0.0002	1	4/28/05	4/29/05	2.7400		
Copper	200.8	0.1110	0.0009	1	4/28/05	4/29/05	0.3290		N
Lead	200.8	0.022	0.001	1	4/28/05	4/29/05	0.007	B	
Nickel	200.8	0.222	0.002	1	4/28/05	4/29/05	5.410		
Selenium	7742	1.00	0.30	2	4/21/05	5/2/05	0.48	B	
Silver	200.8	0.0222	0.0006	1	4/28/05	4/29/05	0.0150	B	
Thallium	200.8	0.02220	0.00007	1	4/28/05	4/29/05	0.00007	U	
Vanadium	6010B	10.0	6.0	1	4/21/05	4/25/05	6.0	U	
Zinc	200.8	0.556	0.002	1	4/28/05	4/29/05	6.460		

% Solids: 0.0

Comments:

*Columbia Analytical Services*

DISSOLVED METALS  
 -1-  
 INORGANIC ANALYSIS DATA SHEET

Client: EMAX Laboratories, Inc.

Service Request: K2502714

Project No.: NA

Date Collected: 04/12/05

Project Name: Moffett Site 1

Date Received: 04/15/05

Matrix: WATER

Units: µg/L

Basis: NA

Sample Name: 86-S1-118

Lab Code: K2502714-010 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010B	50	50	1	4/21/05	4/25/05	50	U	
Antimony	200.8	1.000	0.120	1	4/21/05	4/25/05	0.202	B	
Arsenic	200.8	0.556	0.002	1	4/28/05	4/29/05	1.770		N
Barium	200.8	1.00	0.60	1	4/21/05	4/25/05	130		
Beryllium	200.8	0.02220	0.00009	1	4/28/05	4/29/05	0.00009	U	N
Cadmium	200.8	0.0222	0.0003	1	4/28/05	4/29/05	0.0413		
Chromium	200.8	0.222	0.002	1	4/28/05	4/29/05	0.257		
Cobalt	200.8	0.0222	0.0002	1	4/28/05	4/29/05	2.4000		
Copper	200.8	0.1110	0.0009	1	4/28/05	4/29/05	0.4340		N
Lead	200.8	0.022	0.001	1	4/28/05	4/29/05	0.020	B	
Nickel	200.8	0.222	0.002	1	4/28/05	4/29/05	5.270		
Selenium	7742	1.00	0.30	2	4/21/05	5/2/05	0.46	B	
Silver	200.8	0.0222	0.0006	1	4/28/05	4/29/05	0.0151	B	
Thallium	200.8	0.02220	0.00007	1	4/28/05	4/29/05	0.00007	U	
Vanadium	6010B	10.0	6.0	1	4/21/05	4/25/05	6.0	U	
Zinc	200.8	0.556	0.002	1	4/28/05	4/29/05	7.150		

% Solids: 0.0

Comments:



*Columbia Analytical Services*

DISSOLVED METALS  
 -1-  
 INORGANIC ANALYSIS DATA SHEET

Client: EMAX Laboratories, Inc.

Service Request: K2502714

Project No.: NA

Date Collected: 04/13/05

Project Name: Moffett Site 1

Date Received: 04/15/05

Matrix: WATER

Units: µg/L

Basis: NA

Sample Name: 86-S1-119

Lab Code: K2502714-011 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010B	50	50	1	4/21/05	4/25/05	50	U	
Antimony	200.8	2.000	0.240	2	4/21/05	4/25/05	0.252	B	
Arsenic	200.8	0.556	0.002	1	4/28/05	4/29/05	6.350		N
Barium	200.8	2.00	1.20	2	4/21/05	4/25/05	218		
Beryllium	200.8	0.02220	0.00009	1	4/28/05	4/29/05	0.00817	B	N
Cadmium	200.8	0.0222	0.0003	1	4/28/05	4/29/05	0.0056	B	
Chromium	200.8	0.222	0.002	1	4/28/05	4/29/05	1.190		
Cobalt	200.8	0.0222	0.0002	1	4/28/05	4/29/05	6.2900		
Copper	200.8	0.1110	0.0009	1	4/28/05	4/29/05	0.2430		N
Lead	200.8	0.022	0.001	1	4/28/05	4/29/05	0.014	B	
Nickel	200.8	0.222	0.002	1	4/28/05	4/29/05	12.2		
Selenium	7742	1.00	0.30	2	4/21/05	5/2/05	0.44	B	
Silver	200.8	0.0222	0.0006	1	4/28/05	4/29/05	0.0031	B	
Thallium	200.8	0.02220	0.00007	1	4/28/05	4/29/05	0.00007	U	
Vanadium	6010B	10.0	6.0	1	4/21/05	4/25/05	6.5	B	
Zinc	200.8	0.556	0.002	1	4/28/05	4/29/05	0.792		

% Solids: 0.0

Comments:

*Columbia Analytical Services*

DISSOLVED METALS  
 -1-  
 INORGANIC ANALYSIS DATA SHEET

Client: EMAX Laboratories, Inc.

Service Request: K2502714

Project No.: NA

Date Collected: 04/13/05

Project Name: Moffett Site 1

Date Received: 04/15/05

Matrix: WATER

Units: µG/L

Basis: NA

Sample Name: 86-S1-120

Lab Code: K2502714-012 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010B	50	50	1	4/21/05	4/25/05	50	U	
Antimony	200.8	1.000	0.120	1	4/21/05	4/25/05	0.312	B	
Arsenic	200.8	0.556	0.002	1	4/28/05	4/29/05	5.430		N
Barium	200.8	1.00	0.60	1	4/21/05	4/25/05	244		
Beryllium	200.8	0.02220	0.00009	1	4/28/05	4/29/05	0.00612	B	N
Cadmium	200.8	0.0222	0.0003	1	4/28/05	4/29/05	0.0003	U	
Chromium	200.8	0.222	0.002	1	4/28/05	4/29/05	0.376		
Cobalt	200.8	0.0222	0.0002	1	4/28/05	4/29/05	4.9900		
Copper	200.8	0.1110	0.0009	1	4/28/05	4/29/05	0.2140		N
Lead	200.8	0.022	0.001	1	4/28/05	4/29/05	0.011	B	
Nickel	200.8	0.222	0.002	1	4/28/05	4/29/05	13.2		
Selenium	7742	1.00	0.30	2	4/21/05	5/2/05	0.54	B	
Silver	200.8	0.0222	0.0006	1	4/28/05	4/29/05	0.0029	B	
Thallium	200.8	0.02220	0.00007	1	4/28/05	4/29/05	0.00007	U	
Vanadium	6010B	10.0	6.0	1	4/21/05	4/25/05	7.1	B	
Zinc	200.8	0.556	0.002	1	4/28/05	4/29/05	0.460	B	

% Solids: 0.0

Comments:

*Columbia Analytical Services*

DISSOLVED METALS  
 -1-  
 INORGANIC ANALYSIS DATA SHEET

Client: EMAX Laboratories, Inc.

Service Request: K2502714

Project No.: NA

Date Collected:

Project Name: Moffett Site 1

Date Received:

Matrix: WATER

Units: µG/L

Basis: NA

Sample Name: Method Blank

Lab Code: K2502714-MB

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010B	50	50	1	4/21/05	4/25/05	50	U	
Antimony	200.8	1.000	0.120	1	4/21/05	4/25/05	0.120	U	
Arsenic	200.8	0.556	0.002	1	4/28/05	4/29/05	0.002	U	N
Barium	200.8	1.00	0.60	1	4/21/05	4/25/05	0.60	U	
Beryllium	200.8	0.02220	0.00009	1	4/28/05	4/29/05	0.00009	B	N
Cadmium	200.8	0.0222	0.0003	1	4/28/05	4/29/05	0.0003	U	
Chromium	200.8	0.222	0.002	1	4/28/05	4/29/05	0.002	U	
Cobalt	200.8	0.0222	0.0002	1	4/28/05	4/29/05	0.0002	U	
Copper	200.8	0.1110	0.0009	1	4/28/05	4/29/05	0.0010	B	N
Lead	200.8	0.022	0.001	1	4/28/05	4/29/05	0.001	U	
Nickel	200.8	0.222	0.002	1	4/28/05	4/29/05	0.031	B	
Selenium	7742	1.00	0.30	2	4/21/05	5/2/05	0.74	B	
Silver	200.8	0.0222	0.0006	1	4/28/05	4/29/05	0.0006	U	
Thallium	200.8	0.02220	0.00007	1	4/28/05	4/29/05	0.00027	B	
Vanadium	6010B	10.0	6.0	1	4/21/05	4/25/05	6.0	U	
Zinc	200.8	0.556	0.002	1	4/28/05	4/29/05	0.006	B	

% Solids: 0.0

Comments:

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Airfield, MFA Site 1, CTO 86  
**Collection Date:** April 11, 2005  
**LDC Report Date:** May 25, 2005  
**Matrix:** Water  
**Parameters:** Volatiles  
**Validation Level:** EPA Level III & IV  
**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 05D053

**Sample Identification**

86-S1-121  
86-S1-108  
86-S1-109\*\*

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## **III. Initial Calibration**

Initial calibration was performed using required standard concentrations.

The mean percent relative standard deviation (%RSD) for all compounds was less than or equal to 15.0% and less than or equal to 30.0% for all individual compounds.

Average relative response factors (RRF) for all system performance check compounds (SPCCs) were within method and validation criteria.

## **IV. Continuing Calibration**

Continuing calibration was performed at the required frequencies.

For the purposes of technical evaluation, all compounds were evaluated against the 20.0% (%D) National Functional Guideline criteria. Unless noted above, all compounds were within the validation criteria.

Initial calibration verification (ICV) percent differences (%D) were less than or equal to 20.0% for all compounds.

All of the continuing calibration RRF values for all system performance check compounds (SPCCs) were within method and validation criteria.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

All internal standard areas and retention times were within QC limits.

## **XI. Target Compound Identifications**

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XII. Compound Quantitation and CRQLs**

All compound quantitation and CRQLs were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XIII. Tentatively Identified Compounds (TICs)**

Tentatively identified compounds were not reported by the laboratory.

## **XIV. System Performance**

The system performance was within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XV. Overall Assessment**

Data flags have been summarized at the end of the report.

## **XVI. Field Duplicates**

No field duplicates were identified in this SDG.

## **XVII. Field Blanks**

Sample 86-S1-121 was identified as a trip blank. No volatile contaminants were found in this blank.



**Moffett Airfield, MFA Site 1, CTO 86**  
**Volatiles - Data Qualification Summary - SDG 05D053**

No Sample Data Qualified in this SDG

**Moffett Airfield, MFA Site 1, CTO 86**  
**Volatiles - Laboratory Blank Data Qualification Summary - SDG 05D053**

No Sample Data Qualified in this SDG

LDC Report# 13504A2

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Airfield, MFA Site 1, CTO 86  
**Collection Date:** April 11, 2005  
**LDC Report Date:** May 25, 2005  
**Matrix:** Water  
**Parameters:** Semivolatiles  
**Validation Level:** EPA Level III & IV  
**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 05D053

**Sample Identification**

86-S1-108  
86-S1-109\*\*

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270C for Semivolatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## **III. Initial Calibration**

Initial calibration was performed using required standard concentrations.

The mean percent relative standard deviation (%RSD) for all compounds was less than or equal to 15.0% and less than or equal to 30.0% for selected individual compounds.

A curve fit, based on the initial calibration, was established for quantitation for selected compounds. The coefficient of determination ( $r^2$ ) was greater than or equal to 0.990 .

Average relative response factors (RRF) for all system performance check compounds (SPCCs) were within method criteria.

## **IV. Continuing Calibration**

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 20.0% for all compounds.

Initial calibration verification (ICV) percent differences (%D) were less than or equal to 20.0% for all compounds.

All of the continuing calibration RRF values for all system performance check compounds (SPCCs) were within method criteria.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No semivolatile contaminants were found in the method blanks.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

All internal standard areas and retention times were within QC limits.

## **XI. Target Compound Identifications**

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XII. Compound Quantitation and CRQLs**

All compound quantitation and CRQLs were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XIII. Tentatively Identified Compounds (TICs)**

Tentatively identified compounds were not reported by the laboratory.

## **XIV. System Performance**

The system performance was within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XV. Overall Assessment**

Data flags have been summarized at the end of the report.

## **XVI. Field Duplicates**

No field duplicates were identified in this SDG.

## **XVII. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Airfield, MFA Site 1, CTO 86**

**Semivolatiles - Data Qualification Summary - SDG 05D053**

No Sample Data Qualified in this SDG

**Moffett Airfield, MFA Site 1, CTO 86**

**Semivolatiles - Laboratory Blank Data Qualification Summary - SDG 05D053**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Airfield, MFA Site 1, CTO 86  
**Collection Date:** April 11, 2005  
**LDC Report Date:** May 25, 2005  
**Matrix:** Water  
**Parameters:** Chlorinated Pesticides  
**Validation Level:** EPA Level III & IV  
**Laboratory:** EMAX Laboratories, Inc.  
**Sample Delivery Group (SDG):** 05D053

**Sample Identification**

86-S1-108  
86-S1-109\*\*

\*\*Indicates sample underwent EPA Level IV review.



## Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8081A for Chlorinated Pesticides.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XIV.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/ECD Instrument Performance Check**

Instrument performance was acceptable unless noted otherwise under initial calibration and continuing calibration sections.

## **III. Initial Calibration**

Initial calibration of single and multicomponent compounds was performed for the primary (quantitation) column and confirmation column as required by this method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

Retention time windows were evaluated and considered technically acceptable for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples on which a Level III review was performed.

## **IV. Continuing Calibration**

Continuing calibration was performed at required frequencies.

The percent differences (%D) of calibration factors in continuing standard mixtures were within the 15.0% QC limits.

Initial calibration verification (ICV) percent differences (%D) were less than or equal to 20.0% for all compounds.

Retention time windows were evaluated and considered technically acceptable for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples on which a Level III review was performed.

The individual 4,4'-DDT and Endrin breakdowns were less than 15.0% .

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No chlorinated pesticide contaminants were found in the method blanks.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Pesticide Cleanup Checks**

### **a. Florisil Cartridge Check**

Florisil cleanup was not required and therefore not performed in this SDG.

### **b. GPC Calibration**

GPC cleanup was not required and therefore not performed in this SDG.

## **XI. Target Compound Identification**

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XII. Compound Quantitation and Reported CRQLs**

All compound quantitation and CRQLs were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XIII. Overall Assessment of Data**

Data flags are summarized at the end of this report.

#### **XIV. Field Duplicates**

— No field duplicates were identified in this SDG.

#### **XV. Field Blanks**

No field blanks were identified in this SDG.

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Airfield, MFA Site 1, CTO 86  
**Collection Date:** April 11, 2005  
**LDC Report Date:** May 25, 2005  
**Matrix:** Water  
**Parameters:** Polychlorinated Biphenyls  
**Validation Level:** EPA Level III & IV  
**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 05D053

**Sample Identification**

86-S1-108  
86-S1-109\*\*

\*\*Indicates sample underwent EPA Level IV review.

## Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8082 for Polychlorinated Biphenyls.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XIV.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/ECD Instrument Performance Check**

Instrument performance data were not provided and therefore not reviewed.

## **III. Initial Calibration**

Initial calibration of multicomponent compounds was performed for the primary (quantitation) column as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

Retention time windows were evaluated and considered technically acceptable for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples on which a Level III review was performed.

## **IV. Continuing Calibration**

Continuing calibration was performed at required frequencies.

The percent differences (%D) of calibration factors in continuing standard mixtures were within the 15.0% QC limits.

Initial calibration verification (ICV) percent differences (%D) were less than or equal to 20.0% for all compounds.

Retention time windows were evaluated and considered technically acceptable for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples on which a Level III review was performed.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No polychlorinated biphenyl contaminants were found in the method blanks.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Pesticide Cleanup Checks**

### **a. Florisil Cartridge Check**

Florisil cleanup was not required and therefore not performed in this SDG.

### **b. GPC Calibration**

GPC cleanup was not required and therefore not performed in this SDG.

## **XI. Target Compound Identification**

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XII. Compound Quantitation and Reported CRQLs**

All compound quantitation and CRQLs were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XIII. Overall Assessment of Data**

Data flags are summarized at the end of this report.

## **XIV. Field Duplicates**

No field duplicates were identified in this SDG.

## **XV. Field Blanks**

No field blanks were identified in this SDG.



**Moffett Airfield, MFA Site 1, CTO 86**  
**Polychlorinated Biphenyls - Data Qualification Summary - SDG 05D053**

No Sample Data Qualified in this SDG

**Moffett Airfield, MFA Site 1, CTO 86**  
**Polychlorinated Biphenyls - Laboratory Blank Data Qualification Summary - SDG 05D053**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Air Field, Site 1, CTO 86  
**Collection Date:** April 11, 2005  
**LDC Report Date:** May 23, 2005  
**Matrix:** Water  
**Parameters:** Metals  
**Validation Level:** EPA Level III & IV  
**Laboratory:** EMAX Laboratories, Inc./Columbia Analytical Services, Inc.

**Sample Delivery Group (SDG):** 05D053/K2502714

**Sample Identification**

86-S1-108  
86-S1-109\*\*

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Methods 6010B and 7000 and EPA Method 200.8 for Metals. The metals analyzed were Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Lead, Mercury, Nickel, Selenium, Silver, Thallium, Vanadium, and Zinc.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

### I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

### II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

### III. Blanks

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. No contaminant concentrations were found in the initial, continuing and preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Beryllium Copper Nickel Selenium Thallium Zinc	0.00009 ug/L 0.0010 ug/L 0.031 ug/L 0.74 ug/L 0.00027 ug/L 0.006 ug/L	All samples in SDG 05D053/K2502714
ICB/CCB	Antimony	0.012 ug/L	86-S1-108
ICB/CCB	Beryllium Cadmium Cobalt Nickel Selenium Silver Thallium	0.02 ug/L 0.02 ug/L 0.0050 ug/L 0.495 ug/L 0.28 ug/L 0.01 ug/L 0.05 ug/L	All samples in SDG 05D053/K2502714
ICB/CCB	Antimony	0.014 ug/L	86-S1-109**

Sample concentrations were compared to the maximum contaminant concentrations detected in the ICB/CCB/PBs. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
86-S1-108	Antimony Beryllium Selenium	0.396 ug/L 0.00426 ug/L 0.46 ug/L	0.396U ug/L 0.00426U ug/L 0.46U ug/L
86-S1-109**	Antimony Beryllium Cadmium Selenium Silver Thallium	0.304 ug/L 0.00883 ug/L 0.0025 ug/L 0.46 ug/L 0.0013 ug/L 0.00210 ug/L	0.304U ug/L 0.00883U ug/L 0.0025U ug/L 0.46U ug/L 0.0013U ug/L 0.00210U ug/L

#### IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

#### V. Matrix Spike Analysis

Matrix spike (MS) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	%R (Limits)	Flag	A or P
86-S1-110MS (All samples in SDG USD053/K2502714)	Arsenic Beryllium Copper	56 (75-125) 69 (75-125) 73 (75-125)	J (all detects) UU (all non-detects)	A

#### VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

#### VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### VIII. Internal Standards

All internal standard percent recoveries (%R) were within QC limits for samples on which a EPA Level IV review was performed with the following exceptions:

Sample	Internal Standard	%R (Limits)	Analyte	Flag	A or P
86-S1-109**	Nickel-61 Indium-115 (4/29/05) Indium-115 (4/25/05)	253.6 (60-125) 143 (60-125) 148.5 (60-125)	Nickel Arsenic Cadmium Chromium Cobalt Copper Silver Zinc Antimony Barium	J (all detects) UJ (all non-detects)	P

Raw data were not evaluated for the samples reviewed by Level III criteria.

#### IX. Furnace Atomic Absorption QC

All graphite furnace atomic absorption QC were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for samples reviewed by Level III criteria.

#### X. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria were met.

#### XI. Sample Result Verification

All sample result verification met validation criteria with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
All samples in SDG 05D053/K2502714	Antimony	Laboratory method detection limit reported at 0.12 ug/L.	MDL should be reported at 0.05 ug/L per the QAPP. 0.11	None	P
All samples in SDG 05D053/K2502714	Barium	Laboratory method detection limit reported at 0.60 ug/L.	MDL should be reported at 0.05 ug/L per the QAPP. 0.18	None	P

Raw data were not evaluated for samples reviewed by Level III criteria.

#### XII. Overall Assessment of Data

Data flags have been summarized at the end of this report.

#### XIII. Field Duplicates

No field duplicates were identified in this SDG.

#### **XIV. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Air Field, Site 1, CTO 86**  
**Metals - Data Qualification Summary - SDG 05D053/K2502714**

SDG	Sample	Analyte	Flag	A or P	Reason
05D053/ K2502714	86-S1-108 86-S1-109**	Arsenic Beryllium Copper	J (all detects) UJ (all non-detects)	A	Matrix spike analysis (%R)
05D053/ K2502714	86-S1-109**	Nickel Arsenic Cadmium Chromium Cobalt Copper Silver Zinc Antimony Barium	J (all detects) UJ (all non-detects)	P	Internal standards (%R)
05D053/ K2502714	86-S1-108 86-S1-109**	Antimony Barium	None None	P	Sample result verification

**Moffett Air Field, Site 1, CTO 86**  
**Metals - Laboratory Blank Data Qualification Summary - SDG 05D053/K2502714**

SDG	Sample	Analyte	Modified Final Concentration	A or P
05D053/ K2502714	86-S1-108	Antimony Beryllium Selenium	0.396U ug/L 0.00426U ug/L 0.46U ug/L	A
05D053/ K2502714	86-S1-109**	Antimony Beryllium Cadmium Selenium Silver Thallium	0.304U ug/L 0.00883U ug/L 0.0025U ug/L 0.46U ug/L 0.0013U ug/L 0.00210U ug/L	A





**TETRA TECH**  
1230 Columbia Street, Suite 500  
San Diego, CA 92101 (619) 234-8696

NUMBER 10359

# CHAIN-OF-CUSTODY RECORD

PROJECT NAME <b>MOFFETT-SITE 1</b>		PURCHASE ORDER NO. <b>20848 TASK 28</b>		LABORATORY NAME <b>EMAX</b>		Project Information Section Do not submit to Laboratory	
PROJECT LOCATION <b>MOFFETT FIELD, CA</b>		PROJECT NO. <b>1990-086E</b>		LABORATORY ID (FOR LABORATORY) <b>DSD068</b>			
AMPLER NAME <b>BILL OGLE</b>		AIRBILL NUMBER <b>849749139245</b>		COMMENTS			
PROJECT CONTACT <b>MARK JEFFERSON</b>		PROJECT CONTACT PHONE NUMBER <b>(949) 756-7583</b>					
SAMPLE ID	DATE COLLECTED	TIME COLLECTED	NO. OF CONTAINER	LEVEL	T T Y P E	DEPTH START END	LOCATION
86-SI-123	4-12-05	1400	3	3	W DAY	-	TRIP BLANK
86-SI-116	4-12-05	1430	11	3	W DAY	-	W1-5
86-SI-117	4-12-05	1600	11	3	W DAY	-	W1-8
86-SI-118	4-12-05	1615	11	3	W DAY	-	W1-8
86-SI-119	4-13-05	0905	11	3	W DAY	-	W1-24
86-SI-120	4-13-05	1075	11	3	W DAY	-	W1-16
ANALYSES REQUIRED							
<div><div>ELINQUISHED BY (Signature) <b>[Signature]</b></div><div>RECEIVED BY (Signature) <b>[Signature]</b></div></div>							
LABORATORY INSTRUCTIONS/COMMENTS <b>METALS &amp; MERCURY ARE FIELD FILTERED</b>							
COMPOSITE DESCRIPTION <b>NA</b>							
SAMPLE CONDITION UPON RECEIPT (FOR LABORATORY) TEMPERATURE: <input type="checkbox"/> INTACT <input type="checkbox"/> BROKEN COOLER SEAL: <input type="checkbox"/> INTACT <input type="checkbox"/> BROKEN							
SAMPLING COMMENT: <b>SITE 1 SEMI ANNUAL 2005</b>							



LABORATORIES, INC.

1835 W. 205th Street  
Torrance, CA 90501

Tel: (310) 618-8889

Fax: (310) 618-0818

Date: 05-09-2005  
EMAX Batch No.: 050068

Attn: Lynn Jefferson

Tetra Tech FW, Inc.  
1940 E Deere Ave, Suite 200  
Santa Ana CA 92705Subject: Laboratory Report  
Project: MFA, Site 1, CTO 86-----  
Enclosed is the Laboratory report for samples received on  
04/14/05. The data reported include :

Sample ID	Control #	Col Date	Matrix	Analysis
86-S1-123	D068-01	04/12/05	WATER	VOLATILE ORGANICS BY GC/MS
86-S1-116	D068-02	04/12/05	WATER	VOLATILE ORGANICS BY GC/MS PESTICIDES ORGANOCHLORINE POLYCHLORINATED BIPHENYLS (PCBS) MERCURY DISSOLVED MT2008DW SEMIVOLATILE ORGANICS BY GCMS
86-S1-117	D068-03	04/12/05	WATER	VOLATILE ORGANICS BY GC/MS PESTICIDES ORGANOCHLORINE POLYCHLORINATED BIPHENYLS (PCBS) MERCURY DISSOLVED MT2008DW SEMIVOLATILE ORGANICS BY GCMS
86-S1-118	D068-04	04/12/05	WATER	VOLATILE ORGANICS BY GC/MS PESTICIDES ORGANOCHLORINE POLYCHLORINATED BIPHENYLS (PCBS) MERCURY DISSOLVED MT2008DW SEMIVOLATILE ORGANICS BY GCMS

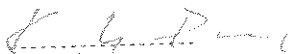
Sample ID	Control #	Col Date	Matrix	Analysis
86-S1-119	D068-05	04/13/05	WATER	VOLATILE ORGANICS BY GC/MS PESTICIDES ORGANOCHLORINE POLYCHLORINATED BIPHENYLS (PCBS) MERCURY DISSOLVED MT2008DW SEMIVOLATILE ORGANICS BY GC/MS
86-S1-120	D068-06	04/13/05	WATER	VOLATILE ORGANICS BY GC/MS PESTICIDES ORGANOCHLORINE POLYCHLORINATED BIPHENYLS (PCBS) MERCURY DISSOLVED MT2008DW SEMIVOLATILE ORGANICS BY GC/MS

Note: Results for Dissolved Metals which were subcontracted to Columbia Analytical Services, Inc. may be found in SDG 050053.

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,



Kam Y. Pang, Ph.D.  
Laboratory Director

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**CASE NARRATIVE**

**CLIENT:** TETRA TECH FW, INC.  
**PROJECT:** MFA, SITE 1, CTO 86  
**SDG:** 05D068

**SW 5030B/8260B  
VOLATILE ORGANICS BY GC/MS**

Six (6) water samples were received on 04/14/05 for Volatile Organic analysis by Method 5030B/8260B in accordance with USEPA SW846, 3<sup>rd</sup> ed.

**1. Holding Time**

Analytical holding time was met.

**2. Tuning and Calibration**

Tuning and calibration were carried out at 12-hour interval. All QC requirements were met.

**3. Method Blank**

Method blank was free of contamination at the reporting limit.

**4. Surrogate Recovery**

Recoveries were within QC limit.

**5. Lab Control Sample/Lab Control Sample Duplicate**

Recoveries were within QC limit.

**6. Matrix Spike/Matrix Spike Duplicate**

No MS/MSD sample was designated in this SDG.

**7. Sample Analysis**

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

SW 50308/82608  
VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW INC.  
Project : MFA SITE 1, CTO 86  
Batch No. : 05D068  
Sample ID: 86-S1-123  
Lab Samp ID: DQ68-01  
Lab File ID: RDQ345  
Ext Btch ID: V005030  
Calib. Ref.: RDQ221

Date Collected: 04/12/05  
Date Received: 04/14/05  
Date Extracted: 04/19/05 04:22  
Date Analyzed: 04/19/05 04:22  
Dilution Factor: 1  
Matrix : WATER  
% Moisture : NA  
Instrument ID : T-005

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	1.0	1.0
1,1,1-TRICHLOROETHANE	ND	1.0	1.0
1,1,2,2-TETRACHLOROETHANE	ND	1.0	1.0
1,1,2-TRICHLOROETHANE	ND	1.0	1.0
1,1-DICHLOROETHANE	ND	1.0	1.0
1,1-DICHLOROETHENE	ND	1.0	1.0
1,1-DICHLOROPROPENE	ND	1.0	1.0
1,2,3-TRICHLOROBENZENE	ND	1.0	1.0
1,2,3-TRICHLOROPROPANE	ND	1.0	1.0
1,2,4-TRICHLOROBENZENE	ND	1.0	1.0
1,2,4-TRIMETHYLBENZENE	ND	1.0	1.0
1,2-DIBROMO-3-CHLOROPROPANE	ND	1.0	1.0
1,2-DICHLOROBENZENE	ND	1.0	1.0
1,2-DICHLOROETHANE	ND	1.0	1.0
1,2-DICHLOROPROPANE	ND	1.0	1.0
1,3,5-TRIMETHYLBENZENE	ND	1.0	1.0
1,3-DICHLOROBENZENE	ND	1.0	1.0
1,3-DICHLOROPROPANE	ND	1.0	1.0
1,4-DICHLOROBENZENE	ND	1.0	1.0
2,2-DICHLOROPROPANE	ND	1.0	1.0
2-BUTANONE	ND	1.0	1.0
2-CHLOROTOLUENE	ND	1.0	1.0
2-HEXANONE	ND	1.0	1.0
4-CHLOROTOLUENE	ND	1.0	1.0
4-METHYL-2-PENTANONE	ND	1.0	1.0
ACETONE	ND	1.0	1.0
BENZENE	ND	1.0	1.0
BROMOBENZENE	ND	1.0	1.0
BROMOCHLOROMETHANE	ND	1.0	1.0
BROMODICHLOROMETHANE	ND	1.0	1.0
BROMOFORM	ND	1.0	1.0
BROMOMETHANE	ND	1.0	1.0
CARBON DISULFIDE	ND	1.0	1.0
CARBON TETRACHLORIDE	ND	1.0	1.0
CHLOROBENZENE	ND	1.0	1.0
CHLOROETHANE	ND	1.0	1.0
CHLOROFORM	ND	1.0	1.0
CHLOROMETHANE	ND	1.0	1.0
CIS-1,2-DICHLOROETHENE	ND	1.0	1.0
CIS-1,3-DICHLOROPROPENE	ND	1.0	1.0
DIBROMOCHLOROMETHANE	ND	1.0	1.0
DIBROMOMETHANE	ND	1.0	1.0
DICHLORODIFLUOROMETHANE	ND	1.0	1.0
ETHYLBENZENE	ND	1.0	1.0
HEXACHLOROBTADIENE	ND	1.0	1.0
ISOPROPYL BENZENE	ND	1.0	1.0
M/P-XYLENES	ND	1.0	1.0
METHYLENE CHLORIDE	ND	1.0	1.0
N-BUTYLBENZENE	ND	1.0	1.0
N-PROPYLBENZENE	ND	1.0	1.0
NAPHTHALENE	ND	1.0	1.0
O-XYLENE	ND	1.0	1.0
P-ISOPROPYLTOLUENE	ND	1.0	1.0
SEC-BUTYLBENZENE	ND	1.0	1.0
STYRENE	ND	1.0	1.0
TERT-BUTYLBENZENE	ND	1.0	1.0
TETRACHLOROETHYLENE	ND	1.0	1.0
TOLUENE	ND	1.0	1.0
TRANS-1,2-DICHLOROETHENE	ND	1.0	1.0
TRANS-1,3-DICHLOROPROPENE	ND	1.0	1.0
TRICHLOROETHENE	ND	1.0	1.0
TRICHLOROFLUOROMETHANE	ND	1.0	1.0
VINYL CHLORIDE	ND	1.0	1.0
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
1,2-DICHLOROETHANE-D4	100	62-139	
TOLUENE-D8	104	75-125	
BROMOFLUOROBENZENE	103	75-125	

R.L. : Reporting limit  
\* : Out of QC  
E : Exceeded calibration range  
CB : Found in associated method blank  
J : Value between R.L. and MDL  
D : Value from dilution analysis  
D.O. : Diluted out

SW 5030B/8260B  
 VOLATILE ORGANICS BY GC/MS

```

=====
Client      : TETRA TECH FW, INC.      Date Collected: 04/12/05
Project     : MFA, SITE 1, CTO 86     Date Received: 04/14/05
Batch No.   : 05D068                  Date Extracted: 04/19/05 04:59
Sample ID   : 86-S1-116               Date Analyzed: 04/19/05 04:59
Lab Samp ID : D068-02                 Dilution Factor: 1
Lab File ID : RDQ346                  Matrix : WATER
Ext Btch ID : V005030                 % Moisture : NA
Calib. Ref. : RDQ221                  Instrument ID : T-005
=====
  
```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	5	3
1,1,1-TRICHLOROETHANE	ND	5	3
1,1,2,2-TETRACHLOROETHANE	ND	5	3
1,1,2-TRICHLOROETHANE	ND	5	3
1,1-DICHLOROETHANE	ND	5	3
1,1-DICHLOROETHENE	ND	5	3
1,1-DICHLOROPROPENE	ND	5	3
1,2,3-TRICHLOROBENZENE	ND	5	3
1,2,3-TRICHLOROPROPANE	ND	5	3
1,2,4-TRICHLOROBENZENE	ND	5	3
1,2,4-TRIMETHYLBENZENE	ND	5	3
1,2-DIBROMO-3-CHLOROPROPANE	ND	5	3
1,2-DICHLOROBENZENE	ND	5	3
1,2-DICHLOROETHANE	ND	5	3
1,2-DICHLOROPROPANE	ND	5	3
1,2,5-TRIMETHYLBENZENE	ND	5	3
1,3-DICHLOROBENZENE	ND	5	3
1,3-DICHLOROPROPANE	ND	5	3
1,4-DICHLOROBENZENE	ND	5	3
2,2-DICHLOROPROPANE	ND	5	3
2-BUTANONE	ND	5	3
2-CHLOROTOLUENE	ND	5	3
2-HEXANONE	ND	5	3
4-CHLOROTOLUENE	ND	5	3
4-METHYL-2-PENTANONE	ND	5	3
ACETONE	ND	5	3
BENZENE	ND	5	3
BROMOBENZENE	ND	5	3
BROMOCHLOROMETHANE	ND	5	3
BROMODICHLOROMETHANE	ND	5	3
BROMOFORM	ND	5	3
BROMOMETHANE	ND	5	3
CARBON DISULFIDE	ND	5	3
CARBON TETRACHLORIDE	ND	5	3
CHLOROBENZENE	ND	5	3
CHLOROETHANE	ND	5	3
CHLOROFORM	ND	5	3
CHLOROMETHANE	ND	5	3
CIS-1,2-DICHLOROETHENE	ND	5	3
CIS-1,3-DICHLOROPROPENE	ND	5	3
DIBROMOCHLOROMETHANE	ND	5	3
DIBROMOMETHANE	ND	5	3
DICHLORODIFLUOROMETHANE	ND	5	3
ETHYLBENZENE	ND	5	3
HEXACHLOROBUTADIENE	ND	5	3
ISOPROPYL BENZENE	ND	5	3
M/P-XYLENES	ND	5	3
METHYLENE CHLORIDE	ND	5	3
N-BUTYLBENZENE	ND	5	3
N-PROPYLBENZENE	ND	5	3
NAPHTHALENE	ND	5	3
O-XYLENE	ND	5	3
P-ISOPROPYLTOLUENE	ND	5	3
SEC-BUTYLBENZENE	ND	5	3
STYRENE	ND	5	3
TERT-BUTYLBENZENE	ND	5	3
TETRACHLOROETHYLENE	ND	5	3
TOLUENE	ND	5	3
TRANS-1,2-DICHLOROETHENE	ND	5	3
TRANS-1,3-DICHLOROPROPENE	ND	5	3
TRICHLOROETHENE	ND	5	3
TRICHLOROFLUOROMETHANE	ND	5	3
VINYL CHLORIDE	ND	5	3
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
1,2-DICHLOROETHANE-D4	115	62-139	
TOLUENE-D8	100	75-125	
BROMOFLUOROBENZENE	95	75-125	

R.L. : Reporting limit  
 \* : Out of QC  
 E : Exceeded calibration range  
 B : Found in associated method blank  
 J : Value between R.L. and MDL  
 D : Value from dilution analysis  
 D.O. : Diluted out

SW 5030B/8260B  
VOLATILE ORGANICS BY GC/MS

```

=====
Client      : TETRA TECH FW, INC.
Project     : MFA, SITE 1, CTO 86
Batch No.   : 05D068
Sample ID   : 86-S1-117
Lab Smp ID  : D068-03
Lab File ID : RD0347
Ext Btch ID : V005D30
Calib. Ref. : RD0221
=====
Date Collected: 04/12/05
Date Received: 04/14/05
Date Extracted: 04/19/05 05:36
Date Analyzed: 04/19/05 05:36
Dilution Factor: 1
Matrix: WATER
% Moisture: NA
Instrument ID: T-005
=====

```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	1	1
1,1,1-TRICHLOROETHANE	ND	1	1
1,1,2-2-TETRACHLOROETHANE	ND	1	1
1,1,2-TRICHLOROETHANE	ND	1	1
1,1-DICHLOROETHANE	ND	1	1
1,1-DICHLOROETHENE	ND	1	1
1,1-DICHLOROPROPENE	ND	1	1
1,2,3-TRICHLOROBENZENE	ND	1	1
1,2,3-TRICHLOROPROPANE	ND	1	1
1,2,4-TRICHLOROBENZENE	ND	1	1
1,2,4-TRIMETHYLBENZENE	ND	1	1
1,2-DIBROMO-3-CHLOROPROPANE	ND	1	1
1,2-DICHLOROBENZENE	ND	1	1
1,2-DICHLOROETHANE	ND	1	1
1,2-DICHLOROPROPANE	ND	1	1
1,3,5-TRIMETHYLBENZENE	ND	1	1
1,3-DICHLOROBENZENE	ND	1	1
1,3-DICHLOROPROPANE	ND	1	1
1,4-DICHLOROBENZENE	ND	1	1
2,2-DICHLOROPROPANE	ND	1	1
2-BUTANONE	ND	1	1
2-CHLOROTOLUENE	ND	1	1
2-HEXANONE	ND	1	1
4-CHLOROTOLUENE	ND	1	1
4-METHYL-2-PENTANONE	ND	1	1
ACETONE	ND	1	1
BENZENE	ND	1	1
BROMOBENZENE	ND	1	1
BROMOCHLOROMETHANE	ND	1	1
BROMODICHLOROMETHANE	ND	1	1
BROMOFORM	ND	1	1
BROMOMETHANE	ND	1	1
CARBON DISULFIDE	ND	1	1
CARBON TETRACHLORIDE	ND	1	1
CHLOROBENZENE	ND	1	1
CHLOROETHANE	ND	1	1
CHLOROFORM	ND	1	1
CHLOROMETHANE	ND	1	1
CIS-1,2-DICHLOROETHENE	ND	1	1
CIS-1,3-DICHLOROPROPENE	ND	1	1
DIBROMOCHLOROMETHANE	ND	1	1
DIBROMOMETHANE	ND	1	1
DICHLORODIFLUOROMETHANE	ND	1	1
ETHYLBENZENE	ND	1	1
HEXACHLOROBUTADIENE	ND	1	1
ISOPROPYL BENZENE	ND	1	1
M/P-XYLENES	ND	1	1
METHYLENE CHLORIDE	ND	1	1
N-BUTYLBENZENE	ND	1	1
N-PROPYLBENZENE	ND	1	1
NAPHTHALENE	ND	1	1
O-XYLENE	ND	1	1
P-ISOPROPYLTOLUENE	ND	1	1
SEC-BUTYLBENZENE	ND	1	1
STYRENE	ND	1	1
TERT-BUTYLBENZENE	ND	1	1
TETRACHLOROETHYLENE	ND	1	1
TOLUENE	ND	1	1
TRANS-1,2-DICHLOROETHENE	ND	1	1
TRANS-1,3-DICHLOROPROPENE	ND	1	1
TRICHLOROETHENE	ND	1	1
TRICHLOROFUOROMETHANE	ND	1	1
VINYL CHLORIDE	ND	1	1
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
1,2-DICHLOROETHANE-D4	114	62-139	
TOLUENE-D8	99	75-125	
BROMOFLUOROBENZENE	94	75-125	

R.L. : Reporting limit  
 \* : Out of QC  
 E : Exceeded calibration range  
 B : Found in associated method blank  
 J : Value between R.L. and MDL  
 D : Value from dilution analysis  
 D.O. : Diluted out

SW 50308/82608  
 VOLATILE ORGANICS BY GC/MS

```

=====
Client      : TETRA TECH FW, INC.
Project     : MFA, SITE 1, CTO 86
Batch No.   : 05D068
Sample ID   : 86-31-118
Lab Samp ID : 0068-04
Lab File ID : RDQ348
Ext Btch ID : V005D30
Calib. Ref. : RDQ221
=====
Date Collected: 04/12/05
Date Received: 04/14/05
Date Extracted: 04/19/05 06:13
Date Analyzed: 04/19/05 06:13
Dilution Factor: 1
Matrix: WATER
% Moisture: NA
Instrument ID : T-005
=====
  
```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,2,2-TETRACHLOROETHANE	ND	5	2
1,1,2-TRICHLOROETHANE	ND	5	2
1,1,2,2-TETRACHLOROETHANE	ND	5	2
1,1,2-TRICHLOROETHANE	ND	5	2
1,1-DICHLOROETHANE	ND	5	2
1,1-DICHLOROETHENE	ND	5	2
1,1-DICHLOROPROPENE	ND	5	2
1,2,3-TRICHLOROBENZENE	ND	5	2
1,2,3-TRICHLOROPROPANE	ND	5	2
1,2,4-TRICHLOROBENZENE	ND	5	2
1,2,4-TRIMETHYLBENZENE	ND	5	2
1,2-DIBROMO-3-CHLOROPROPANE	ND	5	2
1,2-DICHLOROBENZENE	ND	5	2
1,2-DICHLOROETHANE	ND	5	2
1,2-DICHLOROPROPANE	ND	5	2
1,3,5-TRIMETHYLBENZENE	ND	5	2
1,3-DICHLOROBENZENE	ND	5	2
1,3-DICHLOROPROPANE	ND	5	2
1,4-DICHLOROBENZENE	ND	5	2
2,2-DICHLOROPROPANE	ND	5	2
2-BUTANONE	ND	5	2
2-CHLOROTOLUENE	ND	5	2
2-HEXANONE	ND	5	2
4-CHLOROTOLUENE	ND	5	2
4-METHYL-2-PENTANONE	4.4J	10	2
ACETONE	ND	5	2
BENZENE	ND	5	2
BROMOBENZENE	ND	5	2
BROMOCHLOROMETHANE	ND	5	2
BROMODICHLOROMETHANE	ND	5	2
BROMOFORM	ND	5	2
BROMOMETHANE	ND	5	2
CARBON DISULFIDE	ND	5	2
CARBON TETRACHLORIDE	ND	5	2
CHLOROBENZENE	ND	5	2
CHLOROETHANE	ND	5	2
CHLOROFORM	ND	5	2
CHLOROMETHANE	ND	5	2
CIS-1,2-DICHLOROETHENE	ND	5	2
CIS-1,3-DICHLOROPROPENE	ND	5	2
DIBROMOCHLOROMETHANE	ND	5	2
DIBROMOMETHANE	ND	5	2
DICHLORODIFLUOROMETHANE	ND	5	2
ETHYLBENZENE	ND	5	2
HEXACHLOROBUTADIENE	ND	5	2
ISOPROPYL BENZENE	ND	5	2
M/P-XYLENES	ND	5	2
METHYLENE CHLORIDE	ND	5	2
N-BUTYLBENZENE	ND	5	2
N-PROPYLBENZENE	ND	5	2
NAPHTHALENE	ND	5	2
O-XYLENE	ND	5	2
P-ISOPROPYLTOLUENE	ND	5	2
SEC-BUTYLBENZENE	ND	5	2
STYRENE	ND	5	2
TERT-BUTYLBENZENE	ND	5	2
TETRACHLOROETHYLENE	ND	5	2
TOLUENE	ND	5	2
TRANS-1,2-DICHLOROETHENE	ND	5	2
TRANS-1,3-DICHLOROPROPENE	ND	5	2
TRICHLOROETHENE	ND	5	2
TRICHLOROFLUOROMETHANE	ND	5	2
VINYL CHLORIDE	ND	5	2
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
1,2-DICHLOROETHANE-D4	115	62-139	
TOLUENE-D8	100	75-125	
BROMOFLUOROBENZENE	95	75-125	

R.L. : Reporting limit  
 \* : Out of QC  
 E : Exceeded calibration range  
 B : Found in associated method blank  
 J : Value between R.L. and MDL  
 D : Value from dilution analysis  
 D.O. : Diluted out



SW 5030B/8260B  
VOLATILE ORGANICS BY GC/MS

```

=====
Client      : TETRA TECH FW, INC.
Project     : MFA, SITE 1, CTO 86
Batch No.   : 05D068
Sample ID   : 86-S1-119
Lab Samp ID : 0968-05
Lab File ID : RDQ349
Ext Btch ID : V005030
Calib. Ref. : RDQ221
=====
Date Collected: 04/13/05
Date Received: 04/14/05
Date Extracted: 04/19/05 06:50
Date Analyzed: 04/19/05 06:50
Dilution Factor: 1
Matrix: WATER
% Moisture: NA
Instrument ID : T-005
=====

```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,2,2-TETRACHLOROETHANE	ND	5	2
1,1,2-TRICHLOROETHANE	ND	5	2
1,2,2-TRICHLOROETHANE	ND	5	2
1,2-TRICHLOROETHANE	ND	5	2
1,1-DICHLOROETHANE	ND	5	2
1-DICHLOROETHENE	ND	5	2
1-DICHLOROPROPENE	ND	5	2
1,2,3-TRICHLOROBENZENE	ND	5	2
1,2,3-TRICHLOROPROPANE	ND	5	2
1,2,4-TRICHLOROBENZENE	ND	5	2
1,2,4-TRIMETHYLBENZENE	ND	5	2
1,2-DIBROMO-3-CHLOROPROPANE	ND	5	2
1,2-DICHLOROBENZENE	ND	5	2
1,2-DICHLOROETHANE	ND	5	2
1,2-DICHLOROPROPANE	ND	5	2
1,3,5-TRIMETHYLBENZENE	ND	5	2
1,3-DICHLOROBENZENE	ND	5	2
1,3-DICHLOROPROPANE	ND	5	2
1,4-DICHLOROBENZENE	ND	5	2
2,2-DICHLOROPROPANE	ND	5	2
2-BUTANONE	ND	5	2
2-CHLOROTOLUENE	ND	5	2
2-HEXANONE	ND	5	2
4-CHLOROTOLUENE	ND	5	2
4-METHYL-2-PENTANONE	5.5J	5	2
ACETONE	ND	5	2
BENZENE	ND	5	2
BROMOBENZENE	ND	5	2
BROMOCHLOROMETHANE	ND	5	2
BROMODICHLOROMETHANE	ND	5	2
BROMOFORM	ND	5	2
BROMOMETHANE	ND	5	2
CARBON DISULFIDE	ND	5	2
CARBON TETRACHLORIDE	ND	5	2
CHLOROBENZENE	ND	5	2
CHLOROETHANE	ND	5	2
CHLOROFORM	ND	5	2
CHLOROMETHANE	ND	5	2
CIS-1,2-DICHLOROETHENE	ND	5	2
CIS-1,3-DICHLOROPROPENE	ND	5	2
DIBROMOCHLOROMETHANE	ND	5	2
DIBROMOMETHANE	ND	5	2
DICHLORODIFLUOROMETHANE	ND	5	2
ETHYLBENZENE	ND	5	2
HEXACHLOROBUTADIENE	ND	5	2
ISOPROPYL BENZENE	ND	5	2
M/P-XYLENES	ND	5	2
METHYLENE CHLORIDE	ND	5	2
N-BUTYLBENZENE	ND	5	2
N-PROPYLBENZENE	ND	5	2
NAPHTHALENE	ND	5	2
O-XYLENE	ND	5	2
P-ISOPROPYLTOLUENE	ND	5	2
SEC-BUTYLBENZENE	ND	5	2
STYRENE	ND	5	2
TERT-BUTYLBENZENE	ND	5	2
TETRACHLOROETHYLENE	ND	5	2
TOLUENE	ND	5	2
TRANS-1,2-DICHLOROETHENE	ND	5	2
TRANS-1,3-DICHLOROPROPENE	ND	5	2
TRICHLOROETHENE	ND	5	2
TRICHLOROFLUOROMETHANE	ND	5	2
VINYL CHLORIDE	ND	5	2
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
1,2-DICHLOROETHANE-D4	120	62-139	
TOLUENE-D8	99	75-125	
BROMOFLUOROBENZENE	95	75-125	

R.L. : Reporting limit  
 \* : Out of QC  
 E : Exceeded calibration range  
 B : Found in associated method blank  
 J : Value between R.L. and MDL  
 D : Value from dilution analysis  
 D.O. : Diluted out

SW 5030B/8260B  
VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC.  
Project : MFA SITE 1, CTO 86  
Batch No. : 05D068  
Sample ID: 86-S1-120  
Lab Samp ID: 0068-06  
Lab File ID: R00350  
Ext Btch ID: V005030  
Calib. Ref.: R00221

Date Collected: 04/13/05  
Date Received: 04/14/05  
Date Extracted: 04/19/05 07:26  
Date Analyzed: 04/19/05 07:26  
Dilution Factor: 1  
Matrix : WATER  
% Moisture : NA  
Instrument ID : T-005

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,2,2-TETRACHLOROETHANE	ND	5	2
1,1,2-TRICHLOROETHANE	ND	5	2
1,2,2-TRICHLOROETHANE	ND	5	2
1,2-TRICHLOROETHANE	ND	5	2
1,1-DICHLOROETHANE	ND	5	2
1-DICHLOROETHENE	ND	5	2
1-DICHLOROPROPENE	ND	5	2
1,2,3-TRICHLOROBENZENE	ND	5	2
1,2,3-TRICHLOROPROPANE	ND	5	2
1,2,4-TRICHLOROBENZENE	ND	5	2
1,2,4-TRIMETHYLBENZENE	ND	5	2
1,2-DIBROMO-3-CHLOROPROPANE	ND	5	2
1,2-DICHLOROBENZENE	ND	5	2
1,2-DICHLOROETHANE	ND	5	2
1,2-DICHLOROPROPANE	ND	5	2
1,3,5-TRIMETHYLBENZENE	ND	5	2
1,3-DICHLOROBENZENE	ND	5	2
1,3-DICHLOROPROPANE	ND	5	2
1,4-DICHLOROBENZENE	ND	5	2
2,2-DICHLOROPROPANE	ND	5	2
2-BUTANONE	ND	5	2
2-CHLOROTOLUENE	ND	5	2
2-HEXANONE	ND	5	2
4-CHLOROTOLUENE	ND	5	2
4-METHYL-2-PENTANONE	ND	5	2
ACETONE	ND	5	2
BENZENE	ND	5	2
BROMOBENZENE	ND	5	2
BROMOCHLOROMETHANE	ND	5	2
BROMODICHLOROMETHANE	ND	5	2
BROMOFORM	ND	5	2
BROMOMETHANE	ND	5	2
CARBON DISULFIDE	ND	5	2
CARBON TETRACHLORIDE	ND	5	2
CHLOROBENZENE	ND	5	2
CHLOROETHANE	ND	5	2
CHLOROFORM	ND	5	2
CHLOROMETHANE	ND	5	2
CIS-1,2-DICHLOROETHENE	ND	5	2
CIS-1,3-DICHLOROPROPENE	ND	5	2
DIBROMOCHLOROMETHANE	ND	5	2
DIBROMOMETHANE	ND	5	2
DICHLORODIFLUOROMETHANE	ND	5	2
ETHYLBENZENE	ND	5	2
HEXACHLOROBUTADIENE	ND	5	2
ISOPROPYL BENZENE	ND	5	2
M/P-XYLENES	ND	5	2
METHYLENE CHLORIDE	ND	5	2
N-BUTYLBENZENE	ND	5	2
N-PROPYLBENZENE	ND	5	2
NAPHTHALENE	ND	5	2
O-XYLENE	ND	5	2
P-ISOPROPYLTOLUENE	ND	5	2
SEC-BUTYLBENZENE	ND	5	2
STYRENE	ND	5	2
TERT-BUTYLBENZENE	ND	5	2
TETRACHLOROETHYLENE	ND	5	2
TOLUENE	ND	5	2
TRANS-1,2-DICHLOROETHENE	ND	5	2
TRANS-1,3-DICHLOROPROPENE	ND	5	2
TRICHLOROETHENE	ND	5	2
TRICHLOROFUOROMETHANE	ND	5	2
VINYL CHLORIDE	ND	5	2
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
1,2-DICHLOROETHANE-D4	118	62-139	
TOLUENE-D8	98	75-125	
BROMOFLUOROBENZENE	94	75-125	

R.L. : Reporting limit  
\* : Out of QC  
E : Exceeded calibration range  
B : Found in associated method blank  
J : Value between R.L. and MDL  
D : Value from dilution analysis  
D.O. : Diluted out

**CASE NARRATIVE**

**CLIENT:** TETRA TECH FW, INC.  
**PROJECT:** MFA, SITE 1, CTO 86  
**SDG:** 05D068

**SW 3520C/8270C  
SEMI VOLATILE ORGANICS BY GC/MS**

Five (5) water samples were received on 04/14/05 for Semi Volatile Organic analysis by Method 3520C/8270C in accordance with USEPA SW846, 3<sup>rd</sup> ed.

**1. Holding Time**

Analytical holding time was met.

**2. Tuning and Calibration**

Tuning and calibration were carried out at 12-hour interval. All QC requirements were met.

**3. Method Blank**

Method blank was free of contamination at the reporting limit.

**4. Surrogate Recovery**

Recoveries were within QC limit.

**5. Lab Control Sample/Lab Control Sample Duplicate**

Recoveries were within QC limit.

**6. Matrix Spike/Matrix Spike Duplicate**

No MS/MSD sample was designated in this SDG.

**7. Sample Analysis**

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

SW 3520C/8270C  
SEMI VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH FW, INC.  
Project : MFA, SITE 1, CTO 86  
Batch No. : 050068  
Sample ID: 86-S1-116  
Lab Samp ID: D068-02  
Lab File ID: RDH123  
Ext Btch ID: SVD016W  
Calib. Ref.: RCH307

Date Collected: 04/12/05  
Date Received: 04/14/05  
Date Extracted: 04/16/05 13:00  
Date Analyzed: 04/19/05 10:03  
Dilution Factor: 95  
Matrix : WATER  
% Moisture : NA  
Instrument ID : T-041

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	0.5	4.8
2,4,6-TRICHLOROPHENOL	ND	0.5	4.8
2,4-DICHLOROPHENOL	ND	0.5	4.8
2,4-DIMETHYLPHENOL	ND	1.0	9.5
2,4-DINITROPHENOL	ND	1.0	9.5
2,4-DINITROTOLUENE	ND	1.0	9.5
2,6-DINITROTOLUENE	ND	0.5	4.8
2-CHLORONAPHTHALENE	ND	0.5	4.8
2-CHLOROPHENOL	ND	0.5	4.8
2-METHYLNAPHTHALENE	ND	1.0	9.5
2-METHYLPHENOL	ND	1.0	9.5
2-NITROANILINE	ND	0.5	4.8
2-NITROPHENOL	ND	0.5	4.8
3,3'-DICHLOROBENZIDINE	ND	1.0	9.5
3-NITROANILINE	ND	1.0	9.5
4,6-DINITRO-2-METHYLPHENOL	ND	0.5	4.8
4-BROMOPHENYL-PHENYL ETHER	ND	0.5	4.8
4-CHLORO-3-METHYLPHENOL	ND	0.5	4.8
4-CHLOROANILINE	ND	0.5	4.8
4-CHLOROPHENYL-PHENYL ETHER	ND	0.5	4.8
4-METHYLPHENOL (1)	ND	1.0	9.5
4-NITROANILINE	ND	0.5	4.8
4-NITROPHENOL	ND	0.5	4.8
ACENAPHTHENE	ND	0.5	4.8
ACENAPHTHYLENE	ND	0.5	4.8
ANTHRACENE	ND	0.5	4.8
BENZO(A)ANTHRACENE	ND	0.5	4.8
BENZO(A)PYRENE	ND	0.5	4.8
BENZO(B)FLUORANTHENE	ND	0.5	4.8
BENZO(K)FLUORANTHENE	ND	0.5	4.8
BENZO(G,H,I)PERYLENE	ND	0.5	4.8
BIS(2-CHLOROETHOXY)METHANE	ND	0.5	4.8
BIS(2-CHLOROETHYL)ETHER	ND	0.5	4.8
BIS(2-CHLOROISOPROPYL)ETHER	ND	0.5	4.8
BIS(2-ETHYLHEXYL)PHTHALATE	ND	0.5	4.8
BUTYLBENZYLPHTHALATE	ND	0.5	4.8
CHRYSENE	ND	0.5	4.8
DI-N-BUTYLPHTHALATE	ND	0.5	4.8
DI-N-OCTYLPHTHALATE	ND	0.5	4.8
DIBENZO(A,H)ANTHRACENE	ND	1.0	9.5
DIBENZOFURAN	ND	1.0	9.5
DIETHYLPHTHALATE	ND	0.5	4.8
DIMETHYLPHTHALATE	ND	0.5	4.8
FLUORANTHENE	ND	1.0	9.5
FLUORENE	ND	0.5	4.8
HEXACHLOROBENZENE	ND	0.5	4.8
HEXACHLOROCYCLOPENTADIENE	ND	0.5	4.8
HEXACHLOROETHANE	ND	0.5	4.8
INDENO(1,2,3-CD)PYRENE	ND	0.5	4.8
ISOPHORONE	ND	0.5	4.8
N-NITROSO-DI-N-PROPYLAMINE	ND	0.5	4.8
N-NITROSODIPHENYLAMINE (2)	ND	1.0	9.5
NITROBENZENE	ND	1.0	9.5
PENTACHLOROPHENOL	ND	0.5	4.8
PHENANTHRENE	ND	0.5	4.8
PHENOL	ND	0.5	4.8
PYRENE	ND	0.5	4.8
1,1'-BIPHENYL	ND	0.5	4.8
ACETOPHENONE	ND	0.5	4.8
ATRAZINE	ND	0.5	4.8
BENZALDEHYDE	ND	0.5	4.8
CAPROLACTAM	ND	0.5	4.8
CARBAZOLE	ND	0.5	4.8
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
2,4,6-TRIBROMOPHENOL	82	25-134	
2-FLUOROBIPHENYL	68	43-125	
2-FLUOROPHENOL	59	25-125	
NITROBENZENE-D5	69	32-125	
PHENOL-D5	64	25-125	
TERPHENYL-D14	89	42-126	

RL: Reporting Limit  
(1): Cannot be separated from 3-Methylphenol  
(2): Cannot be separated from Diphenylamine

SW 3520C/8270C  
 SEMI VOLATILE ORGANICS BY GC/MS

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=====
Client      : TETRA TECH FW, INC.
Project     : MFA SITE 1, CTO 86
Batch No.   : 05D068
Sample ID   : 86-S1-117
Lab Smp ID  : D068-03
Lab File ID : RDH124
Ext Btch ID : SVD016W
Calib. Ref. : RCH307

Date Collected: 04/12/05
Date Received: 04/14/05
Date Extracted: 04/16/05 13:00
Date Analyzed: 04/19/05 19:30
Dilution Factor: .95
Matrix       : WATER
% Moisture   : NA
Instrument ID : T-041
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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.5	4.8
2,4,6-TRICHLOROPHENOL	ND	9.5	4.8
2,4-DICHLOROPHENOL	ND	9.5	4.8
2,4-DIMETHYLPHENOL	ND	10	9.5
2,4-DINITROPHENOL	ND	10	5.7
2,4-DINITROTOLUENE	ND	10	4.8
2,6-DINITROTOLUENE	ND	9.5	4.8
2-CHLORONAPHTHALENE	ND	9.5	4.8
2-CHLOROPHENOL	ND	9.5	4.8
2-METHYLNAPHTHALENE	ND	10	5.7
2-METHYLPHENOL	ND	9.5	4.8
2-NITROANILINE	ND	9.5	4.8
2-NITROPHENOL	ND	9.5	4.8
3,3'-DICHLOROBENZIDINE	ND	9.5	9.5
3-NITROANILINE	ND	10	6.8
4,6-DINITRO-2-METHYLPHENOL	ND	9.5	4.8
4-BROMOPHENYL-PHENYL ETHER	ND	9.5	4.8
4-CHLORO-3-METHYLPHENOL	ND	9.5	4.8
4-CHLOROANILINE	ND	9.5	4.8
4-CHLOROPHENYL-PHENYL ETHER	ND	9.5	4.8
4-METHYLPHENOL (1)	ND	10	4.8
4-NITROANILINE	ND	9.5	4.8
4-NITROPHENOL	ND	9.5	4.8
ACENAPHTHENE	ND	9.5	4.8
ACENAPHTHYLENE	ND	9.5	4.8
ANTHRACENE	ND	9.5	4.8
BENZO(A)ANTHRACENE	ND	9.5	4.8
BENZO(A)PYRENE	ND	9.5	4.8
BENZO(B)FLUORANTHENE	ND	9.5	4.8
BENZO(K)FLUORANTHENE	ND	9.5	4.8
BENZO(G,H,I)PERYLENE	ND	9.5	4.8
BIS(2-CHLOROETHOXY)METHANE	ND	9.5	4.8
BIS(2-CHLOROETHYL)ETHER	ND	10	9.5
BIS(2-CHLOROISOPROPYL)ETHER	ND	9.5	4.8
BIS(2-ETHYLHEXYL)PHTHALATE	ND	9.5	4.8
BUTYLBENZYLPHTHALATE	ND	9.5	4.8
CHRYSENE	ND	9.5	4.8
DI-N-BUTYLPHTHALATE	ND	9.5	4.8
DI-N-OCTYLPHTHALATE	ND	9.5	4.8
DIBENZO(A,H)ANTHRACENE	ND	10	5.7
DIBENZOFURAN	ND	10	4.8
DIETHYLPHTHALATE	ND	9.5	4.8
DIMETHYLPHTHALATE	ND	9.5	4.8
FLUORANTHENE	ND	10	5.7
FLUORENE	ND	9.5	4.8
HEXACHLOROBENZENE	ND	9.5	4.8
HEXACHLOROCYCLOPENTADIENE	ND	9.5	4.8
HEXACHLOROETHANE	ND	9.5	4.8
INDENO(1,2,3-CD)PYRENE	ND	9.5	4.8
ISOPHORONE	ND	9.5	4.8
N-NITROSO-DI-N-PROPYLAMINE	ND	9.5	4.8
N-NITROSDIPHENYLAMINE (2)	ND	10	9.5
NITROBENZENE	ND	10	5.7
PENTACHLOROPHENOL	ND	10	4.8
PHENANTHRENE	ND	9.5	4.8
PHENOL	ND	9.5	4.8
PYRENE	ND	9.5	2.4
1,1'-BIPHENYL	ND	10	9.5
ACETOPHENONE	ND	9.5	4.8
ATRAZINE	ND	9.5	4.8
BENZALDEHYDE	ND	9.5	4.8
CAPROLACTAM	ND	9.5	4.8
CARBAZOLE	ND	9.5	4.8

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	76	25-134
2-FLUOROBIPHENYL	70	43-120
2-FLUOROPHENOL	69	35-120
NITROBENZENE-D5	75	35-155
PHENOL-D5	68	25-120
TERPHENYL-D14	84	42-126

RL: Reporting Limit  
 (1): Cannot be separated from 3-Methylphenol  
 (2): Cannot be separated from Diphenylamine

SW 3520C/8270C  
 SEMI VOLATILE ORGANICS BY GC/MS

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=====
Client      : TETRA TECH FW, INC.
Project     : MFA, SITE 1, CTO 86
Batch No.   : 05D068
Sample ID   : 86-S1-118
Lab Samp ID : D068-04
Lab File ID : RDH125
Ext Btch ID : SVD016W
Calib. Ref. : RCH307

Date Collected: 04/12/05
Date Received: 04/14/05
Date Extracted: 04/16/05 13:00
Date Analyzed: 04/19/05 19:58
Dilution Factor: .94
Matrix       : WATER
% Moisture   : NA
Instrument ID : T-041
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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	19	9.4
2,4-DINITROPHENOL	ND	19	5.6
2,4-DINITROTOLUENE	ND	19	4.7
2,6-DINITROTOLUENE	ND	9.4	4.7
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	19	5.6
2-METHYLPHENOL	ND	9.4	4.7
2-NITROANILINE	ND	9.4	4.7
2-NITROPHENOL	ND	9.4	4.7
3,1-DICHLOROBENZIDINE	ND	9.4	9.4
3-NITROANILINE	ND	19	9.4
4,6-DINITRO-2-METHYLPHENOL	ND	19	9.4
4-BROMOPHENYL-PHENYL ETHER	ND	9.4	4.7
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	19	4.7
4-NITROANILINE	ND	9.4	4.7
4-NITROPHENOL	ND	9.4	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	19	9.4
BIS(2-CHLOROISOPROPYL)ETHER	ND	9.4	4.7
BIS(2-ETHYLHEXYL)PHTHALATE	ND	9.4	4.7
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
D1-N-BUTYLPHTHALATE	ND	9.4	4.7
D1-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	19	5.6
DIETHYLPHTHALATE	ND	19	4.7
DIMETHYLPHTHALATE	ND	9.4	4.7
FLUORANTHENE	ND	19	5.6
FLUORENE	ND	9.4	4.7
HEXACHLORO BENZENE	ND	9.4	4.7
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-D1-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSODIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	19	5.6
PENTACHLOROPHENOL	ND	19	4.7
PHENANTHRENE	ND	9.4	4.7
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	2.3
1,1'-BIPHENYL	ND	19	9.4
ACETOPHENONE	ND	9.4	4.7
ATRAZINE	ND	9.4	4.7
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
2,4,6-TRIBROMOPHENOL	77	25-134	
2-FLUOROBIPHENYL	70	43-125	
2-FLUOROPHENOL	63	25-125	
NITROBENZENE-D5	74	26-125	
PHENOL-D5	69	25-125	
TERPHENYL-D14	87	42-126	

RL: Reporting Limit  
 (1): Cannot be separated from 3-Methylphenol  
 (2): Cannot be separated from Diphenylamine

SW 3520C/8270C  
 SEMI VOLATILE ORGANICS BY GC/MS

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=====
Client      : TETRA TECH FW, INC.
Project     : MFA, SITE 1, CTO 86
Batch No.   : 05D068
Sample ID   : 86-S1-119
Lab Samp ID : D068-05
Lab File ID : RDH126
Ext Btch ID : SVD016W
Calib. Ref. : RCH307

Date Collected: 04/13/05
Date Received: 04/14/05
Date Extracted: 04/16/05 13:00
Date Analyzed: 04/19/05 20:26
Dilution Factor: .94
Matrix       : WATER
% Moisture   : NA
Instrument ID : T-041
=====
  
```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	19	9.4
2,4-DINITROPHENOL	ND	19	5.6
2,4-DINITROTOLUENE	ND	9.4	4.7
2,6-DINITROTOLUENE	ND	9.4	4.7
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	19	5.6
2-METHYLPHENOL	ND	9.4	4.7
2-NITROANILINE	ND	9.4	4.7
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	19	6.6
4,6-DINITRO-2-METHYLPHENOL	ND	19	4.7
4-BROMOPHENYL-PHENYL ETHER	ND	9.4	4.7
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	19	4.7
4-NITROANILINE	ND	9.4	4.7
4-NITROPHENOL	ND	9.4	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	19	9.4
BIS(2-ETHYLHEXYL)PHTHALATE	ND	9.4	4.7
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHTHALATE	ND	9.4	4.7
DI-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	19	5.6
DIETHYLPHTHALATE	ND	19	4.7
DIMETHYLPHTHALATE	ND	9.4	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	19	5.6
HEXACHLOROBENZENE	ND	9.4	4.7
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSODIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	19	9.4
PENTACHLOROPHENOL	ND	19	4.7
PHENANTHRENE	ND	9.4	4.7
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	2.3
1,1'-BIPHENYL	ND	19	9.4
ACETOPHENONE	ND	9.4	4.7
ATRAZINE	ND	9.4	4.7
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
2,4,6-TRIBROMOPHENOL	81	25-134	
2-FLUOROBIPHENYL	67	43-122	
2-FLUOROPHENOL	62	25-55	
NITROBENZENE-D5	71	25-25	
PHENOL-D5	69	42-126	
TERPHENYL-D14	86		

RL: Reporting Limit  
 (1): Cannot be separated from 3-Methylphenol  
 (2): Cannot be separated from Diphenylamine

SW 3520C/8270C  
 SEMI VOLATILE ORGANICS BY GC/MS

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=====
Client      : TETRA TECH FW, INC.      Date Collected: 04/13/05
Project     : MFA SITE 1, CTO 86      Date Received: 04/14/05
Batch No.   : 05D068                  Date Extracted: 04/16/05 13:00
Sample ID   : 86-S1-120               Date Analyzed: 04/19/05 20:54
Lab Smp ID  : D068-06                 Dilution Factor: .96
Lab File ID : RDH127                  Matrix          : WATER
Ext Btch ID : SVD016W                 % Moisture      : NA
Calib. Ref. : RCH307                  Instrument ID   : T-041
=====
  
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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,6-TRICHLOROPHENOL	ND	9.6	4.8
2,4,6-TRICHLOROPHENOL	ND	9.6	4.8
2,4-DICHLOROPHENOL	ND	9.6	4.8
2,4-DIMETHYLPHENOL	ND	9.6	4.8
2,4-DINITROPHENOL	ND	19	9.6
2,4-DINITROTOLUENE	ND	19	5.8
2,6-DINITROTOLUENE	ND	9.6	4.8
2-CHLORONAPHTHALENE	ND	9.6	4.8
2-CHLOROPHENOL	ND	9.6	4.8
2-METHYLNAPHTHALENE	ND	9.6	4.8
2-METHYLPHENOL	ND	19	5.8
2-NITROANILINE	ND	9.6	4.8
2-NITROPHENOL	ND	9.6	4.8
3,4-DICHLOROBENZIDINE	ND	9.6	4.8
3-NITROANILINE	ND	19	9.6
4,6-DINITRO-2-METHYLPHENOL	ND	19	6.7
4-BROMOPHENYL-PHENYL ETHER	ND	9.6	4.8
4-CHLORO-3-METHYLPHENOL	ND	9.6	4.8
4-CHLOROANILINE	ND	9.6	4.8
4-CHLOROPHENYL-PHENYL ETHER	ND	9.6	4.8
4-METHYLPHENOL (1)	ND	9.6	4.8
4-NITROANILINE	ND	19	4.8
4-NITROPHENOL	ND	9.6	4.8
ACENAPHTHENE	ND	9.6	4.8
ACENAPHTHYLENE	ND	9.6	4.8
ANTHRACENE	ND	9.6	4.8
BENZO(A)ANTHRACENE	ND	9.6	4.8
BENZO(A)PYRENE	ND	9.6	4.8
BENZO(B)FLUORANTHENE	ND	9.6	4.8
BENZO(K)FLUORANTHENE	ND	9.6	4.8
BENZO(G,H,I)PERYLENE	ND	9.6	4.8
BIS(2-CHLOROETHOXY)METHANE	ND	9.6	4.8
BIS(2-CHLOROETHYL)ETHER	ND	9.6	4.8
BIS(2-CHLOROISOPROPYL)ETHER	ND	19	9.6
BIS(2-ETHYLHEXYL)PHTHALATE	ND	9.6	4.8
BUTYLBENZYLPHTHALATE	ND	9.6	4.8
CHRYSENE	ND	9.6	4.8
DI-N-BUTYLPHTHALATE	ND	9.6	4.8
DI-N-OCTYLPHTHALATE	ND	9.6	4.8
DIBENZO(A,H)ANTHRACENE	ND	9.6	4.8
DIBENZOFURAN	ND	9.6	4.8
DIETHYLPHTHALATE	ND	19	4.8
DIMETHYLPHTHALATE	ND	9.6	4.8
FLUORANTHENE	ND	9.6	4.8
FLUORENE	ND	19	5.8
HEXACHLOROBENZENE	ND	9.6	4.8
HEXACHLOROCYCLOPENTADIENE	ND	9.6	4.8
HEXACHLOROETHANE	ND	9.6	4.8
INDENO(1,2,3-CD)PYRENE	ND	9.6	4.8
ISOPHORONE	ND	9.6	4.8
N-NITROSO-DI-N-PROPYLAMINE	ND	9.6	4.8
N-NITROSODIPHENYLAMINE (2)	ND	9.6	4.8
NITROBENZENE	ND	19	9.6
PENTACHLOROPHENOL	ND	19	5.8
PHENANTHRENE	ND	9.6	4.8
PHENOL	ND	9.6	4.8
PYRENE	ND	9.6	4.8
1,1'-BIPHENYL	ND	9.6	2.4
ACETOPHENONE	ND	19	9.6
ATRAZINE	ND	9.6	4.8
BENZALDEHYDE	ND	9.6	4.8
CAPROLACTAM	ND	9.6	4.8
CARBAZOLE	ND	9.6	4.8

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	82	25-134
2-FLUOROBIPHENYL	72	43-125
2-FLUOROPHENOL	67	25-125
NITROBENZENE-D5	78	25-125
PHENOL-D5	73	25-125
TERPHENYL-D14	89	42-126

RL: Reporting Limit  
 (1): Cannot be separated from 3-Methylphenol  
 (2): Cannot be separated from Diphenylamine



**CASE NARRATIVE**

**CLIENT:** TETRA TECH FW, INC.  
**PROJECT:** MFA, SITE 1, CTO 86  
**SDG:** 05D068

**SW3520C/8081A  
PESTICIDES**

Five (5) water samples were received on 04/14/05 for Pesticides analysis by Method 3520C/8081A in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3<sup>rd</sup> ed.

**1. Holding Time**

Analytical holding time was met.

**2. Instrument Performance and Calibration**

Initial calibration was at five-point for Pesticides, all RSDs were within 20%. All continue calibrations were analyzed at 12 hour interval and mean recoveries were within 85-115%. Endrin and DDT breakdown were within QC limits.

**3. Method Blank**

Method blank was free of contamination at the reporting limit.

**4. Surrogate Recovery**

Recoveries were within QC limit.

**5. Lab Control Sample/Lab Control Sample Duplicate**

All recoveries were within QC limits.

**6. Matrix Spike/Matrix Spike Duplicate**

No MS/MSD sample was designated in this SDG.

**7. Sample Analysis**

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

When sample results are confirmed by a second column, the relative percentage difference (RPD) between the two results is calculated. If RPD is less than 40%, and no evidence of chromatographic problems, the higher result is reported. If RPD is greater than 40%, the chromatogram is checked for anomalies and results are selected based on the best professional judgement. If no evidence of any chromatographic problems, the higher result is reported.

SW3520C/8081A  
 PESTICIDES

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=====
Client      : TETRA TECH FW, INC.      Date Collected: 04/12/05
Project     : MFA, SITE 1, CTO 86      Date Received: 04/14/05
Batch No.   : 05D068                  Date Extracted: 04/14/05 13:00
Sample ID   : 86-S1-116               Date Analyzed: 04/18/05 20:17
Lab Samp ID : D068-02                 Dilution Factor: .94
Lab File ID : SD18021A                Matrix       : WATER
Ext Btch ID : CPD012W                 % Moisture    : NA
Calib. Ref. : SD18003A                Instrument ID : GCT008
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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ALPHA-BHC	.038J .054)	.047	.0094 .0094
GAMMA-BHC (LINDANE)	(ND) .04J	.047	.0094 .0094
BETA-BHC	(ND) 10	.047	.0094 .0094
HEPTACHLOR	(ND) .01J	.047	.0094 .0094
DELTA-BHC	(ND) ND	.047	.0094 .0094
ALDRIN	(ND) .011J	.047	.0094 .0094
HEPTACHLOR EPOXIDE	(ND) .022J	.047	.0094 .0094
GAMMA-CHLORDANE	(ND) ND	.047	.0094 .0094
ALPHA-CHLORDANE	(ND) ND	.047	.0094 .0094
ENDOSULFAN I	(ND) ND	.047	.028 .028
4,4'-DDE	(ND) ND	.094	.028 .028
DIELDRIN	(ND) ND	.19	.094 .094
ENDRIN	(ND) ND	.094	.019 .019
4,4'-DDD	(ND) ND	.094	.028 .028
ENDOSULFAN II	(ND) ND	.094	.019 .019
4,4'-DDT	(ND) ND	.094	.019 .019
ENDRIN ALDEHYDE	(ND) ND	.094	.019 .019
ENDOSULFAN SULFATE	(ND) ND	.094	.019 .019
ENDRIN KETONE	(ND) ND	.094	.019 .019
METHOXYCHLOR	(ND) ND	.47	.094 .094
TOXAPHENE	(ND) ND	2.8	1.2 1.2
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
TETRACHLORO-M-XYLENE	(103) 100	30-130	
DECACHLOROBIPHENYL	(84) 82	30-130	

RL : Reporting limit  
 Left of | is related to first column ; Right of | related to second column  
 ( ) included the reported column

SW3520C/8081A  
PESTICIDES

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=====
Client      : TETRA TECH FW, INC.
Project     : MFA, SITE 1, CTO 86
Batch No.   : 050068
Sample ID   : 86-S1-117
Lab Smp ID  : D068-03
Lab File ID : SD18022A
Ext Btch ID : CP0012W
Calib. Ref. : SD18003A
=====
Date Collected: 04/12/05
Date Received: 04/14/05
Date Extracted: 04/14/05 13:00
Date Analyzed: 04/18/05 20:42
Dilution Factor: .95
Matrix       : WATER
% Moisture   : NA
Instrument ID : GCT008
=====

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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ALPHA-BHC	(ND) ND	.048	.0095
GAMMA-BHC (LINDANE)	(ND) ND	.048	.0095
BETA-BHC	(ND) ND	.048	.0095
HEPTACHLOR	(ND) ND	.048	.0095
DELTA-BHC	(ND) ND	.048	.0095
ALDRIN	(ND) ND	.048	.0095
HEPTACHLOR EPOXIDE	(ND) ND	.048	.0095
GAMMA-CHLORDANE	(ND) ND	.048	.0095
ALPHA-CHLORDANE	(ND) ND	.048	.028
ENDOSULFAN I	(ND) ND	.095	.028
4,4'-DDE	(ND) ND	.19	.095
DIELDRIN	(ND) ND	.095	.019
ENDRIN	(ND) ND	.095	.028
4,4'-DDD	(ND) ND	.095	.019
ENDOSULFAN II	(ND) ND	.095	.019
4,4'-DDT	(ND) ND	.095	.019
ENDRIN ALDEHYDE	(ND) ND	.095	.019
ENDOSULFAN SULFATE	(ND) ND	.095	.019
ENDRIN KETONE	(ND) ND	.48	.095
METHOXYCHLOR	(ND) ND	2.8	1.2
TOXAPHENE	(ND) ND		
SURROGATE PARAMETERS		QC LIMIT	
TETRACHLORO-M-XYLENE		30-130	
DECACHLOROBIPHENYL		30-130	

RL : Reporting limit  
Left of | is related to first column ; Right of | related to second column  
( ) included the reported column

SW3520C/8081A  
 PESTICIDES

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=====
Client      : TETRA TECH FW, INC.
Project     : MFA, SITE 1, CTO 86
Batch No.   : 05D068
Sample ID   : 86-S1-118
Lab Samp ID : D068-04
Lab File ID : SD18023A
Ext Btch ID : CPD012W
Calib. Ref. : SD18003A
Date Collected: 04/12/05
Date Received: 04/14/05
Date Extracted: 04/14/05 13:00
Date Analyzed: 04/18/05 21:07
Dilution Factor: .94
Matrix      : WATER
% Moisture  : NA
Instrument ID : GCT008
=====
  
```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
	(ND)   ND	.047	.0094   .0094
ALPHA-BHC	(ND)   ND	.047	.0094   .0094
GAMMA-BHC (LINDANE)	(ND)   ND	.047	.0094   .0094
BETA-BHC	(ND)   .012J	.047	.0094   .0094
HEPTACHLOR	(ND)   ND	.047	.0094   .0094
DELTA-BHC	(ND)   ND	.047	.0094   .0094
ALDRIN	(ND)   ND	.047	.0094   .0094
HEPTACHLOR EPOXIDE	(ND)   ND	.047	.0094   .0094
GAMMA-CHLORDANE	(ND)   ND	.047	.0094   .0094
ALPHA-CHLORDANE	(ND)   ND	.047	.028   .028
ENDOSULFAN I	(ND)   ND	.094	.028   .028
4,4'-DDE	(ND)   ND	.19	.094   .094
DIELDRIN	(ND)   ND	.094	.019   .019
ENDRIN	(ND)   ND	.094	.028   .028
4,4'-DDD	(ND)   ND	.094	.019   .019
ENDOSULFAN II	(ND)   ND	.094	.019   .019
4,4'-DDT	(ND)   ND	.094	.019   .019
ENDRIN ALDEHYDE	(ND)   ND	.094	.019   .019
ENDOSULFAN SULFATE	(ND)   ND	.094	.019   .019
ENDRIN KETONE	(ND)   ND	.47	.094   .094
METHOXYCHLOR	(ND)   ND	2.8	1.2   1.2
TOXAPHENE	(ND)   ND		
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
	69   (79)	30-130	
TETRACHLORO-M-XYLENE	(78)   78	30-130	
DECACHLOROBIPHENYL			

RL : Reporting limit  
 Left of | is related to first column ; Right of | related to second column  
 ( ) included the reported column

SW3520C/8081A  
PESTICIDES

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=====
Client      : TETRA TECH FW, INC.      Date Collected: 04/13/05
Project     : MFA, SITE 1, CTO 86      Date Received: 04/14/05
Batch No.   : 05D068                  Date Extracted: 04/14/05 13:00
Sample ID: 86-S1-119                  Date Analyzed: 04/18/05 21:32
Lab Samp ID: D068-05                  Dilution Factor: .95
Lab File ID: SD18024A                  Matrix          : WATER
Ext Btch ID: CPD012W                  % Moisture       : NA
Calib. Ref.: SD18003A                  Instrument ID    : GCT008
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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ALPHA-BHC	.01J (ND)	.048	.0095
GAMMA-BHC (LINDANE)	(ND) ND	.048	.0095
BETA-BHC	(ND) ND	.048	.0095
HEPTACHLOR	(ND) ND	.048	.0095
DELTA-BHC	(ND) ND	.048	.0095
ALDRIN	(ND) .018J	.048	.0095
HEPTACHLOR EPOXIDE	(ND) ND	.048	.0095
GAMMA-CHLORDANE	(ND) ND	.048	.0095
ALPHA-CHLORDANE	(ND) ND	.048	.028
ENDOSULFAN I	(ND) ND	.095	.028
4,4'-DDE	(ND) ND	.19	.095
DIELDRIN	(ND) ND	.095	.019
ENDRIN	(ND) ND	.095	.028
4,4'-DDD	(ND) ND	.095	.019
ENDOSULFAN II	(ND) ND	.095	.019
4,4'-DDT	(ND) ND	.095	.019
ENDRIN ALDEHYDE	(ND) ND	.095	.019
ENDOSULFAN SULFATE	(ND) ND	.095	.019
ENDRIN KETONE	(ND) ND	.48	.095
METHOXYCHLOR	(ND) ND	2.8	1.2
TOXAPHENE			
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
TETRACHLORO-M-XYLENE	60 (69)	30-130	
DECACHLOROBIPHENYL	(67) 65	30-130	

RL : Reporting limit  
Left of | is related to first column ; Right of | related to second column  
( ) included the reported column

SW3520C/8081A  
PESTICIDES

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=====
Client      : TETRA TECH FW, INC.
Project     : MFA, SITE 1, CTO 86
Batch No.   : 05D068
Sample ID   : 86-S1-120
Lab Samp ID : D068-06
Lab File ID : SD18025A
Ext Btch ID : CPD012W
Calib. Ref. : SD18003A
=====
Date Collected: 04/13/05
Date Received: 04/14/05
Date Extracted: 04/14/05 13:00
Date Analyzed: 04/18/05 21:58
Dilution Factor: .96
Matrix       : WATER
% Moisture   : NA
Instrument ID : GCT008
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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ALPHA-BHC	(ND)   ND	.048	.0096   .0096
GAMMA-BHC (LINDANE)	(ND)   ND	.048	.0096   .0096
BETA-BHC	(ND)   .35	.048	.0096   .0096
HEPTACHLOR	(ND)   ND	.048	.0096   .0096
DELTA-BHC	(ND)   ND	.048	.0096   .0096
ALDRIN	(ND)   .018J	.048	.0096   .0096
HEPTACHLOR EPOXIDE	(ND)   ND	.048	.0096   .0096
GAMMA-CHLORDANE	(ND)   ND	.048	.0096   .0096
ALPHA-CHLORDANE	(ND)   ND	.048	.029   .029
ENDOSULFAN I	(ND)   ND	.096	.029   .029
4,4'-DDE	(ND)   ND	.19	.096   .096
DIELDRIN	(ND)   ND	.096	.019   .019
ENDRIN	(ND)   ND	.096	.029   .029
4,4'-DDD	(ND)   ND	.096	.019   .019
ENDOSULFAN II	(ND)   ND	.096	.019   .019
4,4'-DDT	(ND)   ND	.096	.019   .019
ENDRIN ALDEHYDE	(ND)   ND	.096	.019   .019
ENDOSULFAN SULFATE	(ND)   ND	.096	.019   .019
ENDRIN KETONE	(ND)   ND	.48	.096   .096
METHOXYCHLOR	(ND)   ND	2.9	1.2   1.2
TOXAPHENE	(ND)   ND		
SURROGATE PARAMETERS		% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE		86   (88)	30-130
DECACHLOROBIPHENYL		(89)   88	30-130

RL : Reporting limit  
Left of | is related to first column ; Right of | related to second column  
( ) included the reported column

**CASE NARRATIVE**

**CLIENT:** TETRA TECH FW, INC.  
**PROJECT:** MFA, SITE 1, CTO 86  
**SDG:** 05D068

**SW3520C/8082  
PCBs**

Five (5) water samples were received on 04/14/05 for PCBs analysis by Method 3520C/8082 in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3<sup>rd</sup> ed.

**1. Holding Time**

Analytical holding time was met.

**2. Instrument Performance and Calibration**

Initial calibration was five points for PCB-1016 and PCB-1260, all RSDs were within 20%. All continue calibrations were analyzed at 12 hour interval and all recoveries were within 85-115%.

**3. Method Blank**

Method blank was free of contamination at the reporting limit.

**4. Surrogate Recovery**

Recoveries were within QC limit.

**5. Lab Control Sample/Lab Control Sample Duplicate**

All recoveries were within QC limits.

**6. Matrix Spike/Matrix Spike Duplicate**

No MS/MSD sample was designated in this SDG.

**7. Sample Analysis**

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

SW3520C/8082  
 PCBs

```

=====
Client      : TETRA TECH FW, INC.      Date Collected: 04/12/05
Project     : MFA, SITE 1, CTO 86      Date Received: 04/14/05
Batch No.   : 05D068                  Date Extracted: 04/14/05 13:00
Sample ID: 86-S1-116                  Date Analyzed: 04/18/05 20:17
Lab Samp ID: D068-02                  Dilution Factor: .94
Lab File ID: SD18021A                 Matrix       : WATER
Ext Btch ID: CPD012W                  % Moisture    : NA
Calib. Ref.: SD18006A                 Instrument ID : GCT008
=====
  
```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
PCB-1016	(ND) ND	.94	.24 .24
PCB-1221	(ND) ND	.94	.24 .24
PCB-1232	(ND) ND	.94	.24 .24
PCB-1242	(ND) ND	.94	.24 .24
PCB-1248	(ND) ND	.94	.24 .24
PCB-1254	(ND) ND	.94	.24 .24
PCB-1260	(ND) ND	.94	.24 .24

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(76) 96	30-130
DECACHLOROBIPHENYL	(93) 91	30-130

RL: Reporting Limit  
 Left of | is related to first column ; Right of | related to second column  
 ( ) included the reported column  
 \* Out side of QC Limit



SW3520C/8082  
PCBs

```

=====
Client      : TETRA TECH FW, INC.      Date Collected: 04/12/05
Project     : MFA, SITE 1, CTO 86      Date Received: 04/14/05
Batch No.   : 05D068                   Date Extracted: 04/14/05 13:00
Sample ID   : 86-S1-117                 Date Analyzed: 04/18/05 20:42
Lab Samp ID : D068-03                   Dilution Factor: .95
Lab File ID : SD18022A                  Matrix          : WATER
Ext Btch ID : CPD012W                   % Moisture       : NA
Calib. Ref. : SD18006A                  Instrument ID    : GCT008
=====

```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
PCB-1016	(ND) ND	.95	.24 .24
PCB-1221	(ND) ND	.95	.24 .24
PCB-1232	(ND) ND	.95	.24 .24
PCB-1242	(ND) ND	.95	.24 .24
PCB-1248	(ND) ND	.95	.24 .24
PCB-1254	(ND) ND	.95	.24 .24
PCB-1260	(ND) ND	.95	.24 .24

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(76) 88	30-130
DECACHLOROBIPHENYL	(90) 89	30-130

RL: Reporting Limit  
 Left of | is related to first column ; Right of | related to second column  
 ( ) included the reported column  
 \* Out side of QC Limit

SW3520C/8082  
PCBs

```

=====
Client      : TETRA TECH FW, INC.      Date Collected: 04/12/05
Project     : MFA, SITE 1, CTO 86      Date Received: 04/14/05
Batch No.   : 050068                  Date Extracted: 04/14/05 13:00
Sample ID: 86-S1-118                  Date Analyzed: 04/18/05 21:07
Lab Samp ID: D068-04                  Dilution Factor: .94
Lab File ID: SD18023A                 Matrix       : WATER
Ext Btch ID: CP0012W                  % Moisture    : NA
Calib. Ref.: SD18006A                 Instrument ID : GCT008
=====
  
```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
PCB-1016	(ND) ND	.94	.24 .24
PCB-1221	(ND) ND	.94	.24 .24
PCB-1232	(ND) ND	.94	.24 .24
PCB-1242	(ND) ND	.94	.24 .24
PCB-1248	(ND) ND	.94	.24 .24
PCB-1254	(ND) ND	.94	.24 .24
PCB-1260	(ND) ND	.94	.24 .24
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
TETRACHLORO-M-XYLENE	(67) 76	30-130	
DECACHLOROBIPHENYL	(87) 86	30-130	

RL: Reporting Limit  
 Left of | is related to first column ; Right of | related to second column  
 ( ) included the reported column  
 \* Out side of QC Limit

SW3520C/8082  
PCBs

```
=====
Client   : TETRA TECH FW, INC.      Date Collected: 04/13/05
Project  : MFA, SITE 1, CTO 86      Date Received: 04/14/05
Batch No. : 05D068                  Date Extracted: 04/14/05 13:00
Sample ID: 86-S1-119                Date Analyzed: 04/18/05 21:32
Lab Samp ID: D068-05                Dilution Factor: .95
Lab File ID: SD18024A               Matrix      : WATER
Ext Btch ID: CPD012W                % Moisture   : NA
Calib. Ref.: SD18006A               Instrument ID : GCT008
=====
```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
PCB-1016	(ND)   ND	.95	.24   .24
PCB-1221	(ND)   ND	.95	.24   .24
PCB-1232	(ND)   ND	.95	.24   .24
PCB-1242	(ND)   ND	.95	.24   .24
PCB-1248	(ND)   ND	.95	.24   .24
PCB-1254	(ND)   ND	.95	.24   .24
PCB-1260	(ND)   ND	.95	.24   .24

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(57)   66	30-130
DECACHLOROBIPHENYL	(74)   72	30-130

RL: Reporting Limit  
 Left of | is related to first column ; Right of | related to second column  
 ( ) included the reported column  
 \* Out side of QC Limit

SW3520C/8082  
PCBs

```

=====
Client      : TETRA TECH FW, INC.      Date Collected: 04/13/05
Project     : MFA, SITE 1, CTO 86      Date Received: 04/14/05
Batch No.   : 05D068                   Date Extracted: 04/14/05 13:00
Sample ID: 86-S1-120                   Date Analyzed: 04/18/05 21:58
Lab Samp ID: D068-06                   Dilution Factor: .96
Lab File ID: SD18025A                  Matrix          : WATER
Ext Btch ID: CPD012W                   % Moisture       : NA
Calib. Ref.: SD18006A                  Instrument ID    : GCT008
=====

```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
PCB-1016	(ND) ND	.96	.24 .24
PCB-1221	(ND) ND	.96	.24 .24
PCB-1232	(ND) ND	.96	.24 .24
PCB-1242	(ND) ND	.96	.24 .24
PCB-1248	(ND) ND	.96	.24 .24
PCB-1254	(ND) ND	.96	.24 .24
PCB-1260	(ND) ND	.96	.24 .24

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(83) 84	30-130
DECACHLOROBIPHENYL	(99) 97	30-130

RL: Reporting Limit  
 Left of | is related to first column ; Right of | related to second column  
 ( ) included the reported column  
 \* Out side of QC Limit

**CASE NARRATIVE**

**CLIENT:** TETRA TECH FW, INC.  
**PROJECT:** MFA, SITE 1, CTO 86  
**SDG:** 05D068

**METHOD 7470A**  
**DISSOLVED MERCURY BY COLD VAPOR**

Five (5) water samples were received on 04/14/05 for Dissolved Mercury analysis by Method 7470A in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3<sup>rd</sup> edition.

**1. Holding Time**

Analysis met holding time criteria.

**2. Method Blank**

Method blank was free of contamination at the reporting limit.

**3. Lab Control Sample/Lab Control Sample Duplicate**

Lab control results were within QC limit.

**4. Serial Dilution / Post-Analytical Spike**

Sample D061-02 from another SDG was analyzed for serial dilution and post-analytical spike. All QC requirements were met.

**5. Matrix Spike/Matrix Spike Duplicate**

No MS/MSD sample was designated in this SDG.

**6. Sample Analysis**

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

Samples were analyzed at DF20 due to matrix interference.

METHOD 7470A  
DISSOLVED MERCURY BY COLD VAPOR

Matrix : WATER  
Instrument ID : 11047

Client : TETRA TECH PW, INC.  
Project : MFA, SITE 1, CTO 86  
Batch No. : 05D068

SAMPLE ID	EMAX SAMPLE ID	RESULTS (UG/L)	DLF	MOIST	RL (UG/L)	MOL (UG/L)	Analysis DATE/TIME	Extraction DATE/TIME	LFID	CAL REF	PREP BATCH	Collection DATE/TIME	Received DATE/TIME
MBLK1W	HGD016MB	ND	1	NA	2	1	04/20/0517:08	04/19/0515:30	M470015010	M470015008	HGD016W	NA	04/19/05
LCS1W	HGD016WL	4.95	1	NA	2	1	04/20/0517:10	04/19/0515:30	M470015011	M470015008	HGD016W	NA	04/19/05
LCD1W	HGD016WC	4.91	1	NA	2	1	04/20/0517:12	04/19/0515:30	M470015012	M470015008	HGD016W	04/12/05	04/14/05
86-S1-116	D068-02	ND	20	NA	4	2	04/20/0517:46	04/19/0515:30	M470015026	M470015020	HGD016W	04/12/05	04/14/05
86-S1-117	D068-03	ND	20	NA	4	2	04/20/0517:51	04/19/0515:30	M470015027	M470015020	HGD016W	04/12/05	04/14/05
86-S1-118	D068-04	ND	20	NA	4	2	04/20/0517:53	04/19/0515:30	M470015028	M470015020	HGD016W	04/13/05	04/14/05
86-S1-119	D068-05	ND	20	NA	4	2	04/20/0517:55	04/19/0515:30	M470015029	M470015020	HGD016W	04/13/05	04/14/05
86-S1-120	D068-06	ND	20	NA	4	2	04/20/0517:55	04/19/0515:30	M470015030	M470015020	HGD016W	04/13/05	04/14/05

RL: Reporting Limit

7003

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Airfield, MFA Site 1, CTO 86  
**Collection Date:** April 12 through April 13, 2005  
**LDC Report Date:** May 25, 2005  
**Matrix:** Water  
**Parameters:** Volatiles  
**Validation Level:** EPA Level III & IV  
**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 05D068

**Sample Identification**

86-S1-123  
86-S1-116  
86-S1-117  
86-S1-118\*\*  
86-S1-119  
86-S1-120

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 6 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.



## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## **III. Initial Calibration**

Initial calibration was performed using required standard concentrations.

The mean percent relative standard deviation (%RSD) for all compounds was less than or equal to 15.0% and less than or equal to 30.0% for all individual compounds.

Average relative response factors (RRF) for all system performance check compounds (SPCCs) were within method and validation criteria.

## **IV. Continuing Calibration**

Continuing calibration was performed at the required frequencies.

For the purposes of technical evaluation, all compounds were evaluated against the 20.0% (%D) National Functional Guideline criteria. Unless noted above, all compounds were within the validation criteria.

Initial calibration verification (ICV) percent differences (%D) were less than or equal to 20.0% for all compounds.

All of the continuing calibration RRF values for all system performance check compounds (SPCCs) were within method and validation criteria.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

All internal standard areas and retention times were within QC limits.

## **XI. Target Compound Identifications**

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XII. Compound Quantitation and CRQLs**

All compound quantitation and CRQLs were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XIII. Tentatively Identified Compounds (TICs)**

Tentatively identified compounds were not reported by the laboratory.

## **XIV. System Performance**

The system performance was within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XV. Overall Assessment**

Data flags have been summarized at the end of the report.

### **XVI. Field Duplicates**

Samples 86-S1-117 and 86-S1-118\*\* were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD
	86-S1-117	86-S1-118**	
Acetone	10U	4.4	Not calculable

### **XVII. Field Blanks**

Sample 86-S1-123 was identified as a trip blank. No volatile contaminants were found in this blank.

**Moffett Airfield, MFA Site 1, CTO 86**  
**Volatiles - Data Qualification Summary - SDG 05D068**

No Sample Data Qualified in this SDG

**Moffett Airfield, MFA Site 1, CTO 86**  
**Volatiles - Laboratory Blank Data Qualification Summary - SDG 05D068**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.**  
**Data Validation Report**

**Project/Site Name:** Moffett Airfield, MFA Site 1, CTO 86  
**Collection Date:** April 12 through April 13, 2005  
**LDC Report Date:** May 25, 2005  
**Matrix:** Water  
**Parameters:** Semivolatiles  
**Validation Level:** EPA Level III & IV  
**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 05D068

**Sample Identification**

86-S1-116  
86-S1-117  
86-S1-118\*\*  
86-S1-119  
86-S1-120

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 5 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270C for Semivolatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## **III. Initial Calibration**

Initial calibration was performed using required standard concentrations.

The mean percent relative standard deviation (%RSD) for all compounds was less than or equal to 15.0% and less than or equal to 30.0% for selected individual compounds.

A curve fit, based on the initial calibration, was established for quantitation for selected compounds. The coefficient of determination ( $r^2$ ) was greater than or equal to 0.990 .

Average relative response factors (RRF) for all system performance check compounds (SPCCs) were within method criteria.

## **IV. Continuing Calibration**

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 20.0% for all compounds.

Initial calibration verification (ICV) percent differences (%D) were less than or equal to 20.0% for all compounds.

All of the continuing calibration RRF values for all system performance check compounds (SPCCs) were within method criteria.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No semivolatile contaminants were found in the method blanks.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

All internal standard areas and retention times were within QC limits.

## **XI. Target Compound Identifications**

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XII. Compound Quantitation and CRQLs**

All compound quantitation and CRQLs were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XIII. Tentatively Identified Compounds (TICs)**

Tentatively identified compounds were not reported by the laboratory.

## **XIV. System Performance**

The system performance was within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XV. Overall Assessment**

Data flags have been summarized at the end of the report.



#### **XVI. Field Duplicates**

Samples 86-S1-117 and 86-S1-118\*\* were identified as field duplicates. No semivolatiles were detected in any of the samples.

#### **XVII. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Airfield, MFA Site 1, CTO 86**  
**Semivolatiles - Data Qualification Summary - SDG 05D068**

No Sample Data Qualified in this SDG

**Moffett Airfield, MFA Site 1, CTO 86**  
**Semivolatiles - Laboratory Blank Data Qualification Summary - SDG 05D068**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Airfield, MFA Site 1, CTO 86  
**Collection Date:** April 12 through April 13, 2005  
**LDC Report Date:** May 25, 2005  
**Matrix:** Water  
**Parameters:** Chlorinated Pesticides  
**Validation Level:** EPA Level III & IV  
**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 05D068

**Sample Identification**

86-S1-116  
86-S1-117  
86-S1-118\*\*  
86-S1-119  
86-S1-120

\*\*Indicates sample underwent EPA Level IV review.

## Introduction

This data review covers 5 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8081A for Chlorinated Pesticides.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XIV.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Pesticide Cleanup Checks**

### **a. Florisil Cartridge Check**

Florisil cleanup was not required and therefore not performed in this SDG.

### **b. GPC Calibration**

GPC cleanup was not required and therefore not performed in this SDG.

## **XI. Target Compound Identification**

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XII. Compound Quantitation and Reported CRQLs**

All compound quantitation and CRQLs were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XIII. Overall Assessment of Data**

Data flags are summarized at the end of this report.

#### **XIV. Field Duplicates**

Samples 86-S1-117 and 86-S1-118\*\* were identified as field duplicates. No chlorinated pesticides were detected in any of the samples.

#### **XV. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Airfield, MFA Site 1, CTO 86**  
**Chlorinated Pesticides - Data Qualification Summary - SDG 05D068**

No Sample Data Qualified in this SDG

**Moffett Airfield, MFA Site 1, CTO 86**  
**Chlorinated Pesticides - Laboratory Blank Data Qualification Summary - SDG 05D068**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Airfield, MFA Site 1, CTO 86  
**Collection Date:** April 12 through April 13, 2005  
**LDC Report Date:** May 25, 2005  
**Matrix:** Water  
**Parameters:** Polychlorinated Biphenyls  
**Validation Level:** EPA Level III & IV  
**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 05D068

**Sample Identification**

86-S1-116  
86-S1-117  
86-S1-118\*\*  
86-S1-119  
86-S1-120

\*\*Indicates sample underwent EPA Level IV review.



## Introduction

This data review covers 5 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8082 for Polychlorinated Biphenyls.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XIV.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/ECD Instrument Performance Check**

Instrument performance data were not provided and therefore not reviewed.

## **III. Initial Calibration**

Initial calibration of multicomponent compounds was performed for the primary (quantitation) column as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

Retention time windows were evaluated and considered technically acceptable for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples on which a Level III review was performed.

## **IV. Continuing Calibration**

Continuing calibration was performed at required frequencies.

The percent differences (%D) of calibration factors in continuing standard mixtures were within the 15.0% QC limits.

Initial calibration verification (ICV) percent differences (%D) were less than or equal to 20.0% for all compounds.

Retention time windows were evaluated and considered technically acceptable for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples on which a Level III review was performed.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No polychlorinated biphenyl contaminants were found in the method blanks.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Pesticide Cleanup Checks**

### **a. Florisil Cartridge Check**

Florisil cleanup was not required and therefore not performed in this SDG.

### **b. GPC Calibration**

GPC cleanup was not required and therefore not performed in this SDG.

## **XI. Target Compound Identification**

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XII. Compound Quantitation and Reported CRQLs**

All compound quantitation and CRQLs were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XIII. Overall Assessment of Data**

Data flags are summarized at the end of this report.

## **XIV. Field Duplicates**

Samples 86-S1-117 and 86-S1-118\*\* were identified as field duplicates. No polychlorinated biphenyls were detected in any of the samples.

## **XV. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Airfield, MFA Site 1, CTO 86**

**Polychlorinated Biphenyls - Data Qualification Summary - SDG 05D068**

No Sample Data Qualified in this SDG

**Moffett Airfield, MFA Site 1, CTO 86**

**Polychlorinated Biphenyls - Laboratory Blank Data Qualification Summary - SDG 05D068**

No Sample Data Qualified in this SDG

LDC Report# 13504C4

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Air Field, Site 1, CTO 86  
**Collection Date:** April 12 through April 13, 2005  
**LDC Report Date:** May 23, 2005  
**Matrix:** Water  
**Parameters:** Metals  
**Validation Level:** EPA Level III & IV  
**Laboratory:** EMAX Laboratories, Inc./Columbia Analytical Services, Inc.

**Sample Delivery Group (SDG):** 05D068/K2502714

**Sample Identification**

86-S1-116  
86-S1-117  
86-S1-118\*\*  
86-S1-119  
86-S1-120  
86-S1-120MS  
86-S1-120DUP

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 7 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Methods 6010B and 7000 and EPA Method 200.8 for Metals. The metals analyzed were Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Lead, Mercury, Nickel, Selenium, Silver, Thallium, Vanadium, and Zinc.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

## III. Blanks

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. No contaminant concentrations were found in the initial, continuing and preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Beryllium Copper Nickel Selenium Thallium Zinc	0.00009 ug/L 0.0010 ug/L 0.031 ug/L 0.74 ug/L 0.00027 ug/L 0.006 ug/L	All samples in SDG 05D068/K2502714
ICB/CCB	Antimony Arsenic Beryllium Cadmium Chromium Cobalt Nickel Selenium Silver Thallium Zinc	0.014 ug/L 0.097 ug/L 0.00890 ug/L 0.01 ug/L 0.071 ug/L 0.0040 ug/L 0.022 ug/L 0.28 ug/L 0.01 ug/L 0.02500 ug/L 0.030 ug/L	All samples in SDG 05D068/K2502714

Sample concentrations were compared to the maximum contaminant concentrations detected in the ICB/CCB/PBs. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:



Sample	Analyte	Reported Concentration	Modified Final Concentration
86-S1-116	Antimony Beryllium Selenium	0.214 ug/L 0.00118 ug/L 0.44 ug/L	0.214U ug/L 0.00118U ug/L 0.44U ug/L
86-S1-117	Antimony Beryllium Selenium	0.204 ug/L 0.00052 ug/L 0.48 ug/L	0.204U ug/L 0.00052U ug/L 0.48U ug/L
86-S1-118**	Antimony Selenium	0.202 ug/L 0.46 ug/L	0.202U ug/L 0.46U ug/L
86-S1-119	Antimony Cadmium Selenium Silver	0.252 ug/L 0.0056 ug/L 0.44 ug/L 0.0031 ug/L	0.252U ug/L 0.0056U ug/L 0.44U ug/L 0.0031U ug/L
86-S1-120	Antimony Selenium Silver	0.312 ug/L 0.54 ug/L 0.0029 ug/L	0.312U ug/L 0.54U ug/L 0.0029U ug/L

#### IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

#### V. Matrix Spike Analysis

Matrix spike (MS) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	%R (Limits)	Flag	A or P
86-S1-110MS (All samples in SDG 05D068/K2502714)	Arsenic Beryllium Copper	56 (75-125) 69 (75-125) 73 (75-125)	J (all detects) UJ (all non-detects)	A

#### VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Internal Standards

All internal standard percent recoveries (%R) were within QC limits for samples on which a EPA Level IV review was performed with the following exceptions:

Sample	Internal Standard	%R (Limits)	Analyte	Flag	A or P
86-S1-118**	Nickel-61 Indium-115 (4/29/05) Indium-115 (4/25/05)	139 (60-125) 134.7 (60-125) 167.4 (60-125)	Nickel Arsenic Cadmium Chromium Cobalt Copper Silver Zinc Antimony Barium	J (all detects) UJ (all non-detects)	P

Raw data were not evaluated for the samples reviewed by Level III criteria.

## IX. Furnace Atomic Absorption QC

All graphite furnace atomic absorption QC were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for samples reviewed by Level III criteria.

## X. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria were met.

## XI. Sample Result Verification

All sample result verification met validation criteria with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
All samples in SDG 05D068/K2502714	Antimony	Laboratory method detection limit reported at 0.12 ug/L.	MDL should be reported at 0.05 ug/L per the QAPP.	None	P
All samples in SDG 05D068/K2502714	Barium	Laboratory method detection limit reported at 0.60 ug/L.	MDL should be reported at 0.05 ug/L per the QAPP.	None	P

Raw data were not evaluated for samples reviewed by Level III criteria.

## **XII. Overall Assessment of Data**

Data flags have been summarized at the end of this report.

## **XIII. Field Duplicates**

Samples 86-S1-117 and 86-S1-118\*\* were identified as field duplicates. No metals were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD
	86-S1-117	86-S1-118**	
Antimony	0.204	0.202	1
Arsenic	2.090	1.770	17
Barium	130	130	0
Beryllium	0.00052	0.00009U	Not calculable
Cadmium	0.0383	0.0413	8
Chromium	0.263	0.257	2
Cobalt	2.7400	2.4000	13
Copper	0.3290	0.4340	28
Lead	0.007	0.020	96
Nickel	5.410	5.270	3
Selenium	0.48	0.46	4
Silver	0.0150	0.0151	1
Zinc	6.460	7.150	10

## **XIV. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Air Field, Site 1, CTO 86**

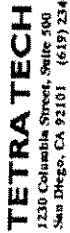
**Metals - Data Qualification Summary - SDG 05D068/K2502714**

SDG	Sample	Analyte	Flag	A or P	Reason
05D068/ K2502714	86-S1-116 86-S1-117 86-S1-118** 86-S1-119 86-S1-120	Arsenic Beryllium Copper	J (all detects) UJ (all non-detects)	A	Matrix spike analysis (%R)
05D068/ K2502714	86-S1-118**	Nickel Arsenic Cadmium Chromium Cobalt Copper Silver Zinc Antimony Barium	J (all detects) UJ (all non-detects)	P	Internal standards (%R)
05D068/ K2502714	86-S1-116 86-S1-117 86-S1-118** 86-S1-119 86-S1-120	Antimony Barium	None None	P	Sample result verification

**Moffett Air Field, Site 1, CTO 86**

**Metals - Laboratory Blank Data Qualification Summary - SDG 05D068/K2502714**

SDG	Sample	Analyte	Modified Final Concentration	A or P
05D068/ K2502714	86-S1-116	Antimony Beryllium Selenium	0.214U ug/L 0.00118U ug/L 0.44U ug/L	A
05D068/ K2502714	86-S1-117	Antimony Beryllium Selenium	0.204U ug/L 0.00052U ug/L 0.48U ug/L	A
05D068/ K2502714	86-S1-118**	Antimony Selenium	0.202U ug/L 0.46U ug/L	A
05D068/ K2502714	86-S1-119	Antimony Cadmium Selenium Silver	0.252U ug/L 0.0056U ug/L 0.44U ug/L 0.0031U ug/L	A
05D068/ K2502714	86-S1-120	Antimony Selenium Silver	0.312U ug/L 0.54U ug/L 0.0029U ug/L	A



NUMBER 10897

## CHAIN-OF-CUSTODY RECORD

[illegible]

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management



**LABORATORIES, INC.**

1835 W. 205th Street  
Torrance, CA 90501  
Tel: (310) 618-8889  
Fax: (310) 618-0818

Date: 11-03-2005  
EMAX Batch No.: 05J036

Attn: Lynn Jefferson

Tetra Tech EC, Inc.  
1940 E Deere Ave, Suite 200  
Santa Ana CA 92705

Subject: Laboratory Report  
Project: MFA, Site 1, CTO 86

Enclosed is the Laboratory report for samples received on 10/06/05.  
The data reported include:

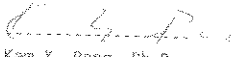
Sample ID	Control #	Col Date	Matrix	Analysis
86-S1-137	J036-01	10/04/05	WATER	VOLATILE ORGANICS BY GC/MS
86-S1-124	J036-02	10/04/05	WATER	VOLATILE ORGANICS BY GC/MS PESTICIDES ORGANOCHLORINE POLYCHLORINATED BIPHENYLS (PCBS) MERCURY DISSOLVED DISSOLVED METALS IN WATER & WASTE
86-S1-125	J036-03	10/04/05	WATER	SEMIVOLATILE ORGANICS BY GC/MS VOLATILE ORGANICS BY GC/MS PESTICIDES ORGANOCHLORINE POLYCHLORINATED BIPHENYLS (PCBS) MERCURY DISSOLVED DISSOLVED METALS IN WATER & WASTE SEMIVOLATILE ORGANICS BY GC/MS

Note: Dissolved Metals in water & waste was subcontracted to Columbia and will be submitted at a later date.

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,

  
Kam Y. Pang, Ph.D.  
Laboratory Director

A

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**CASE NARRATIVE**

**CLIENT:** TETRA TECH EC, INC.  
**PROJECT:** MFA, SITE 1, CTO 86  
**SDG:** 05J036

**SW 5030B/8260B  
VOLATILE ORGANICS BY GC/MS**

Three (3) water samples were received on 10/06/05 for Volatile Organic analysis by Method 5030B/8260B in accordance with USEPA SW846, 3<sup>rd</sup> ed.

1. **Holding Time**  
Analytical holding time was met.
2. **Tuning and Calibration**  
Tuning and calibration were carried out at 12-hour interval. All QC requirements were met.
3. **Method Blank**  
Method blank was free of contamination at the reporting limit.
4. **Surrogate Recovery**  
Recoveries were within QC limit.
5. **Lab Control Sample/Lab Control Sample Duplicate**  
Recoveries were within QC limit.
6. **Matrix Spike/Matrix Spike Duplicate**  
No MS/MSD sample was designated in this SDG.
7. **Sample Analysis**  
Samples were analyzed according to the prescribed QC procedures. All criteria were met.

SW 50308/82608  
VOLATILE ORGANICS BY GC/MS

=====  
Client : TETRA TECH EC, INC. Date Collected: 10/04/05  
Project : MFA, SITE 1, CTO B6 Date Received: 10/06/05  
Batch No. : 05J036 Date Extracted: 10/12/05 23:41  
Sample ID: 86-S1-137 Date Analyzed: 10/12/05 23:41  
Lab Samp ID: J036-01R Dilution Factor: 1  
Lab File ID: RJD377 Matrix : WATER  
Ext Btch ID: V094J33 % Moisture : NA  
Calib. Ref.: RJD292 Instrument ID : T-094  
=====

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	.5	.2
1,1,1-TRICHLOROETHANE	ND	.5	.2
1,1,2,2-TETRACHLOROETHANE	ND	.5	.2
1,1,2-TRICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHENE	ND	.5	.2
1,1-DICHLOROPROPENE	ND	.5	.2
1,2,3-TRICHLOROBENZENE	ND	.5	.2
1,2,3-TRICHLOROPROPANE	ND	.5	.2
1,2,4-TRICHLOROBENZENE	ND	.5	.2
1,2,4-TRIMETHYLBENZENE	ND	.5	.2
1,2-DIBROMO-3-CHLOROPROPANE	ND	.5	.2
1,2-DICHLOROBENZENE	ND	.5	.2
1,2-DICHLOROETHANE	ND	.5	.2
1,2-DICHLOROPROPANE	ND	.5	.2
1,3,5-TRIMETHYLBENZENE	ND	.5	.2
1,3-DICHLOROBENZENE	ND	.5	.2
1,3-DICHLOROPROPANE	ND	.5	.2
1,4-DICHLOROBENZENE	ND	.5	.2
2,2-DICHLOROPROPANE	ND	.5	.2
2-BUTANONE	ND	.5	.2
2-CHLOROTOLUENE	ND	.5	.2
2-HEXANONE	ND	.5	.2
4-CHLOROTOLUENE	ND	.5	.2
4-METHYL-2-PENTANONE	ND	.5	.2
ACETONE	ND	.5	.2
BENZENE	ND	.5	.2
BROMOBENZENE	ND	.5	.2
BROMOCHLOROMETHANE	ND	.5	.2
BROMODICHLOROMETHANE	ND	.5	.2
BROMOFORM	ND	.5	.2
BROMOMETHANE	ND	.5	.2
CARBON DISULFIDE	ND	.5	.2
CARBON TETRACHLORIDE	ND	.5	.2
CHLOROBENZENE	ND	.5	.2
CHLOROETHANE	ND	.5	.2
CHLOROFORM	ND	.5	.2
CHLOROMETHANE	ND	.5	.2
CIS-1,2-DICHLOROETHENE	ND	.5	.2
CIS-1,3-DICHLOROPROPENE	ND	.5	.2
DIBROMOCHLOROMETHANE	ND	.5	.2
DIBROMOMETHANE	ND	.5	.2
DICHLORODIFLUOROMETHANE	ND	.5	.2
ETHYLBENZENE	ND	.5	.2
HEXACHLOROBUTADIENE	ND	.5	.2
ISOPROPYL BENZENE	ND	.5	.2
M/P-XYLENES	ND	.5	.2
METHYLENE CHLORIDE	ND	.5	.2
N-BUTYLBENZENE	ND	.5	.2
N-PROPYLBENZENE	ND	.5	.2
NAPHTHALENE	ND	.5	.2
O-XYLENE	ND	.5	.2
P-ISOPROPYLTOLUENE	ND	.5	.2
SEC-BUTYLBENZENE	ND	.5	.2
STYRENE	ND	.5	.2
TERT-BUTYLBENZENE	ND	.5	.2
TETRACHLOROETHYLENE	ND	.5	.2
TOLUENE	ND	.5	.2
TRANS-1,2-DICHLOROETHENE	ND	.5	.2
TRANS-1,3-DICHLOROPROPENE	ND	.5	.2
TRICHLOROETHENE	ND	.5	.2
TRICHLOROFLUOROMETHANE	ND	.5	.2
VINYL CHLORIDE	ND	.5	.2
SURROGATE PARAMETERS			
	% RECOVERY	QC LIMIT	
1,2-DICHLOROETHANE-D4	100	62-139	
TOLUENE-DB	97	75-125	
BROMOFLUOROBENZENE	97	75-125	

R.L. : Reporting limit  
\* : Out of QC  
E : Exceeded calibration range  
B : Found in associated method blank  
J : Value between R.L. and MDL  
D : Value from dilution analysis  
D.O. : Diluted out



SW 5030B/8260B  
VOLATILE ORGANICS BY GC/MS

```

=====
Client      : TETRA TECH EC, INC.
Project     : MFA, SITE 1, CTO 86
Batch No.   : 05J036
Sample ID   : 86-G1-124
Lab Smp ID  : J036-02R
Lab File ID : RJD378
Ext Btch ID : V094J33
Calib. Ref. : RJD292
Date Collected: 10/04/05
Date Received: 10/06/05
Date Extracted: 10/13/05 00:20
Date Analyzed: 10/13/05 00:20
Dilution Factor: 1
Matrix      : WATER
% Moisture  : NA
Instrument ID : T-094
=====
  
```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	5	2
1,1,1-TRICHLOROETHANE	ND	5	2
1,1,2,2-TETRACHLOROETHANE	ND	5	2
1,1,2-TRICHLOROETHANE	ND	5	2
1,1-DICHLOROETHANE	ND	5	2
1,1-DICHLOROETHENE	ND	5	2
1,1-DICHLOROPROPENE	ND	5	2
1,2,3-TRICHLOROBENZENE	ND	5	2
1,2,3-TRICHLOROPROPANE	ND	5	2
1,2,4-TRICHLOROBENZENE	ND	5	2
1,2,4-TRIMETHYLBENZENE	ND	5	2
1,2-DIBROMO-3-CHLOROPROPANE	ND	5	2
1,2-DICHLOROBENZENE	ND	5	2
1,2-DICHLOROETHANE	ND	5	2
1,2-DICHLOROPROPANE	ND	5	2
1,3,5-TRIMETHYLBENZENE	ND	5	2
1,3-DICHLOROBENZENE	ND	5	2
1,3-DICHLOROPROPANE	ND	5	2
1,4-DICHLOROBENZENE	ND	5	2
2,2-DICHLOROPROPANE	ND	5	2
2-BUTANONE	ND	5	2
2-CHLOROTOLUENE	ND	10	2
2-HEXANONE	ND	5	2
4-CHLOROTOLUENE	ND	10	2
4-METHYL-2-PENTANONE	ND	5	2
ACETONE	ND	10	2
BENZENE	ND	10	2
BROMOBENZENE	ND	5	2
BROMOCHLOROMETHANE	ND	5	2
BROMODICHLOROMETHANE	ND	5	2
BROMOFORM	ND	5	2
BROMOMETHANE	ND	5	2
CARBON DISULFIDE	ND	3	2
CARBON TETRACHLORIDE	ND	5	2
CHLOROBENZENE	ND	5	2
CHLOROETHANE	ND	5	2
CHLOROFORM	ND	1	2
CHLOROMETHANE	ND	5	2
CIS-1,2-DICHLOROETHENE	ND	1	2
CIS-1,3-DICHLOROPROPENE	ND	5	2
DIBROMOCHLOROMETHANE	ND	5	2
DIBROMOMETHANE	ND	5	2
DICHLORODIFLUOROMETHANE	ND	5	2
ETHYLBENZENE	ND	1	2
HEXACHLOROBUTADIENE	ND	5	2
ISOPROPYL BENZENE	ND	5	2
M/P-XYLENES	ND	5	2
METHYLENE CHLORIDE	ND	1	2
N-BUTYLBENZENE	ND	2	2
N-PROPYLBENZENE	ND	5	2
NAPHTHALENE	ND	5	2
O-XYLENE	ND	5	2
P-ISOPROPYLTOLUENE	ND	5	2
SEC-BUTYLBENZENE	ND	5	2
STYRENE	ND	5	2
TERT-BUTYLBENZENE	ND	5	2
TETRACHLOROETHYLENE	ND	5	2
TOLUENE	ND	5	2
TRANS-1,2-DICHLOROETHENE	ND	5	2
TRANS-1,3-DICHLOROPROPENE	ND	5	2
TRICHLOROETHENE	ND	5	2
TRICHLOROFLUOROMETHANE	ND	5	2
VINYL CHLORIDE	ND	1	2
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
1,2-DICHLOROETHANE-D4	117	62-139	
TOLUENE-D8	93	75-125	
BROMOFLUOROBENZENE	96	75-125	

R.L. : Reporting limit  
 \* : Out of QC  
 E : Exceeded calibration range  
 B : Found in associated method blank  
 J : Value between R.L. and MDL  
 D : Value from dilution analysis  
 D.O. : Diluted out

SW 50308/82608  
VOLATILE ORGANICS BY GC/MS

=====

Client : TETRA TECH EC, INC.	Date Collected: 10/04/05
Project : MFA, SITE 1, CTO 86	Date Received: 10/06/05
Batch No. : 053036	Date Extracted: 10/13/05 01:00
Sample ID: 86-S1-125	Date Analyzed: 10/13/05 01:00
Lab Smp ID: J036-03R	Dilution Factor: 1
Lab File ID: RJD379	Matrix : WATER
Ext Btch ID: V094J33	% Moisture : NA
Calib. Ref.: RJD292	Instrument ID : T-094

=====

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,2-TETRACHLOROETHANE	ND	5	3
1,1,1-TRICHLOROETHANE	ND	5	3
1,1,2,2-TETRACHLOROETHANE	ND	5	3
1,1,2-TRICHLOROETHANE	ND	5	3
1,1-DICHLOROETHANE	ND	5	3
1,1-DICHLOROETHENE	ND	5	3
1,1-DICHLOROPROPENE	ND	5	3
1,2,3-TRICHLOROBENZENE	ND	5	3
1,2,3-TRICHLOROPROPANE	ND	5	3
1,2,4-TRICHLOROBENZENE	ND	5	3
1,2,4-TRIMETHYLBENZENE	ND	5	3
1,2-DIBROMO-3-CHLOROPROPANE	ND	5	3
1,2-DICHLOROBENZENE	ND	5	3
1,2-DICHLOROETHANE	ND	5	3
1,2-DICHLOROPROPANE	ND	5	3
1,3,5-TRIMETHYLBENZENE	ND	5	3
1,3-DICHLOROBENZENE	ND	5	3
1,3-DICHLOROPROPANE	ND	5	3
1,4-DICHLOROBENZENE	ND	5	3
2,2-DICHLOROPROPANE	ND	5	3
2-BUTANONE	ND	5	3
2-CHLOROTOLUENE	ND	5	3
2-HEXANONE	ND	5	3
4-CHLOROTOLUENE	ND	5	3
4-METHYL-2-PENTANONE	ND	5	3
ACETONE	ND	5	3
BENZENE	ND	5	3
BROMOBENZENE	ND	5	3
BROMOCHLOROMETHANE	ND	5	3
BROMODICHLOROMETHANE	ND	5	3
BROMOFORM	ND	5	3
BROMOMETHANE	ND	5	3
CARBON DISULFIDE	ND	5	3
CARBON TETRACHLORIDE	ND	5	3
CHLOROBENZENE	ND	5	3
CHLOROETHANE	ND	5	3
CHLOROFORM	ND	5	3
CHLOROMETHANE	ND	5	3
CIS-1,2-DICHLOROETHENE	ND	5	3
CIS-1,3-DICHLOROPROPENE	ND	5	3
DIBROMOCHLOROMETHANE	ND	5	3
DIBROMOMETHANE	ND	5	3
DICHLORODIFLUOROMETHANE	ND	5	3
ETHYLBENZENE	ND	5	3
HEXACHLOROBUTADIENE	ND	5	3
ISOPROPYL BENZENE	ND	5	3
M/P-XYLENES	ND	5	3
METHYLENE CHLORIDE	ND	5	3
N-BUTYLBENZENE	ND	5	3
N-PROPYLBENZENE	ND	5	3
NAPHTHALENE	ND	5	3
O-XYLENE	ND	5	3
P-ISOPROPYLTOLUENE	ND	5	3
SEC-BUTYLBENZENE	ND	5	3
STYRENE	ND	5	3
TERT-BUTYLBENZENE	ND	5	3
TETRACHLOROETHYLENE	ND	5	3
TOLUENE	ND	5	3
TRANS-1,2-DICHLOROETHENE	ND	5	3
TRANS-1,3-DICHLOROPROPENE	ND	5	3
TRICHLOROETHENE	ND	5	3
TRICHLOROFLUOROMETHANE	ND	5	3
VINYL CHLORIDE	ND	5	3
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
1,2-DICHLOROETHANE-D4	113	62-139	
TOLUENE-D8	94	75-125	
BROMOFLUOROBENZENE	94	75-125	

R.L. : Reporting limit  
 \* : Out of QC  
 E : Exceeded calibration range  
 B : Found in associated method blank  
 J : Value between R.L. and MDL  
 D : Value from dilution analysis  
 D.O. : Diluted out

**CASE NARRATIVE**

**CLIENT:** TETRA TECH EC, INC.  
**PROJECT:** MFA, SITE 1, CTO 86  
**SDG:** 05J036

**SW 3520C/8270C  
SEMI VOLATILE ORGANICS BY GC/MS**

Two (2) water samples were received on 10/06/05 for Semi Volatile Organic analysis by Method 3520C/8270C in accordance with USEPA SW846, 3<sup>rd</sup> ed.

**1. Holding Time**

Analytical holding time was met.

**2. Tuning and Calibration**

Tuning and calibration were carried out at 12-hour interval. All QC requirements were met.

**3. Method Blank**

Method blank was free of contamination at the reporting limit.

**4. Surrogate Recovery**

Recoveries were within QC limit.

**5. Lab Control Sample/Lab Control Sample Duplicate**

Recoveries were within QC limit.

**6. Matrix Spike/Matrix Spike Duplicate**

No MS/MSD sample was designated in this SDG.

**7. Sample Analysis**

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

SW 3520C/8270C  
SEMI VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH EC, INC. Date Collected: 10/04/05  
Project : MFA, SITE 1, CTO B6 Date Received: 10/06/05  
Batch No. : 05J036 Date Extracted: 10/11/05 20:00  
Sample ID: 86-S1-124 Date Analyzed: 10/14/05 15:50  
Lab Samp ID: J036-02 Dilution Factor: .94  
Lab File ID: RJX079 Matrix : WATER  
Ext Btch ID: SVJ009W % Moisture : NA  
Calib. Ref.: R1X122 Instrument ID : T-042

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	19	9.4
2,4-DINITROTOLUENE	ND	19	9.4
3,5-DINITROTOLUENE	ND	19	5.6
3-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	9.4	4.7
2-NITROANILINE	ND	19	5.6
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	9.4	4.7
4,6-DINITRO-2-METHYLPHENOL	ND	19	9.4
4-BROMOPHENYL-PHENYL ETHER	ND	19	6.6
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	9.4	4.7
4-NITROPHENOL	ND	19	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	9.4	4.7
BIS(2-ETHYLHEXYL)PHTHALATE	ND	19	9.4
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHTHALATE	ND	9.4	4.7
DI-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	9.4	4.7
DIETHYLPHTHALATE	ND	19	5.6
DIMETHYLPHTHALATE	ND	19	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	9.4	4.7
HEXACHLOROBENZENE	ND	19	5.6
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSODIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	9.4	4.7
PENTACHLOROPHENOL	ND	19	9.4
PHENANTHRENE	ND	19	5.6
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	4.7
ACETOPHENONE	ND	9.4	2.3
ATRAZINE	ND	19	9.4
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	69	25-134
2-FLUOROBIPHENYL	56	43-125
2-FLUOROPHENOL	44	62-125
NITROBENZENE-D5	49	32-125
PHENOL-D5	48	25-125
TERPHENYL-D14	88	42-126

RL: Reporting Limit  
(1): Cannot be separated from 3-Methylphenol  
(2): Cannot be separated from Diphenylamine

SW 3520C/8270C  
SEMI VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH EC, INC. Date Collected: 10/04/05  
Project : MFA, SITE 1, CTO 86 Date Received: 10/06/05  
Batch No. : 05J036 Date Extracted: 10/11/05 20:00  
Sample ID: 86-S1-125 Date Analyzed: 10/14/05 16:16  
Lab Samp ID: J056-03 Dilution Factor: 94  
Lab File ID: RJX080 Matrix: WATER  
Ext Btch ID: SVJ009W % Moisture: NA  
Calib. Ref.: R1X122 Instrument ID: T-042

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	19	9.4
2,4-DINITROTOLUENE	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	5.6
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	9.4	4.7
2-NITROANILINE	ND	19	5.6
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	9.4	4.7
4,6-DINITRO-2-METHYLPHENOL	ND	19	9.4
4-BROMOPHENYL-PHENYL ETHER	ND	9.4	6.6
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	9.4	4.7
4-NITROPHENOL	ND	19	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	9.4	4.7
BIS(2-ETHYLHEXYL)PHTHALATE	ND	19	9.4
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHTHALATE	ND	9.4	4.7
DI-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	9.4	4.7
DIETHYLPHTHALATE	ND	19	5.6
DIMETHYLPHTHALATE	ND	19	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	9.4	4.7
HEXACHLOROBENZENE	ND	19	5.6
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSODIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	9.4	4.7
PENTACHLOROPHENOL	ND	19	9.4
PHENANTHRENE	ND	19	5.6
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	4.7
ACETOPHENONE	ND	9.4	2.3
ATRAZINE	ND	19	9.4
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	GC LIMIT
2,4,6-TRIBROMOPHENOL	70	25-134
2-FLUOROBIPHENYL	61	43-125
2-FLUOROPHENOL	50	25-125
NITROBENZENE-D5	56	32-125
PHENOL-D5	55	25-125
TERPHENYL-D14	89	42-126

RL: Reporting Limit  
(1): Cannot be separated from 3-Methylphenol  
(2): Cannot be separated from Diphenylamine

**CASE NARRATIVE**

**CLIENT:** TETRA TECH EC, INC.  
**PROJECT:** MFA, SITE 1, CTO 86  
**SDG:** 05J036

**SW3520C/8081A  
PESTICIDES**

Two (2) water samples were received on 10/06/05 for Pesticides analysis by Method 3520C/8081A in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3<sup>rd</sup> ed.

**1. Holding Time**

Analytical holding time was met.

**2. Instrument Performance and Calibration**

Initial calibration was at five-point for Pesticides, all RSDs were within 20%. All continue calibrations were analyzed at 12-hour interval and mean recoveries were within 85-115%. Endrin and DDT breakdown were within QC limits.

**3. Method Blank**

Method blank was free of contamination at the reporting limit.

**4. Surrogate Recovery**

Recoveries were within QC limit.

**5. Lab Control Sample/Lab Control Sample Duplicate**

All recoveries were within QC limits.

**6. Matrix Spike/Matrix Spike Duplicate**

No MS/MSD sample was designated in this SDG.

**7. Sample Analysis**

Samples were analyzed according to the prescribed QC procedures. All QC criteria were met.

When sample results are confirmed by a second column, the relative percentage difference (RPD) between the two results is calculated. If RPD is less than 40%, and no evidence of chromatographic problems, the higher result is reported. If RPD is greater than 40%, the chromatogram is checked for anomalies and results are selected based on the best professional judgement. If no evidence of any chromatographic problems, the higher result is reported.

SW3520C/8081A  
PESTICIDES

```
=====
Client      : TETRA TECH EC, INC.      Date Collected: 10/04/05
Project     : MFA, SITE 1, CTO 86      Date Received: 10/06/05
Batch No.   : 05J036                  Date Extracted: 10/11/05 14:00
Sample ID: 86-S1-124                  Date Analyzed: 10/13/05 15:26
Lab Samp ID: J036-02                  Dilution Factor: .95
Lab File ID: SJ13012A                 Matrix          : WATER
Ext Btch ID: CPJ007W                  % Moisture       : NA
Calib. Ref.: SJ13003A                 Instrument ID    : GCT008
=====
```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ALPHA-BHC	(ND)   ND	.048	.0095   .0095
GAMMA-BHC (LINDANE)	(ND)   ND	.048	.0095   .0095
BETA-BHC	(ND)   .021J	.048	.0095   .0095
HEPTACHLOR	.11   (ND)	.048	.0095   .0095
DELTA-BHC	(ND)   ND	.048	.0095   .0095
ALDRIN	(ND)   ND	.048	.0095   .0095
HEPTACHLOR EPOXIDE	(ND)   ND	.048	.0095   .0095
GAMMA-CHLORDANE	(ND)   ND	.048	.0095   .0095
ALPHA-CHLORDANE	(ND)   ND	.048	.0095   .0095
ENDOSULFAN I	(ND)   ND	.048	.028   .028
4,4'-DDE	(ND)   ND	.095	.028   .028
DIELDRIN	(ND)   ND	.19	.095   .095
ENDRIN	(ND)   ND	.095	.019   .019
4,4'-DDD	(ND)   ND	.095	.028   .028
ENDOSULFAN II	(ND)   ND	.095	.019   .019
4,4'-DDT	(ND)   ND	.095	.019   .019
ENDRIN ALDEHYDE	(ND)   ND	.095	.019   .019
ENDOSULFAN SULFATE	(ND)   ND	.095	.019   .019
ENDRIN KETONE	(ND)   ND	.095	.019   .019
METHOXYCHLOR	(ND)   ND	.48	.095   .095
TOXAPHENE	(ND)   ND	2.8	1.2   1.2
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
-----			
TETRACHLORO-M-XYLENE	70   (72)	30-130	
DECAHLOROBIPHENYL	94   (95)	30-130	

RL : Reporting limit  
Left of | is related to first column ; Right of | related to second column  
( ) included the reported column

SW3520C/8081A  
PESTICIDES

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=====
Client       : TETRA TECH EC, INC.      Date Collected: 10/04/05
Project      : MFA, SITE 1, CTO 86      Date Received: 10/06/05
Batch No.    : 05J036                   Date Extracted: 10/11/05 14:00
Sample ID    : 86-S1-125                 Date Analyzed: 10/13/05 15:51
Lab Samp ID  : J036-03                   Dilution Factor: .96
Lab File ID  : SJ13013A                  Matrix          : WATER
Ext Btch ID  : CPJ007W                   % Moisture       : NA
Calib. Ref.  : SJ13003A                  Instrument ID    : GCT008
=====

```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ALPHA-BHC	(ND) ND	.048	.0096
GAMMA-BHC (LINDANE)	(ND) ND	.048	.0096
BETA-BHC	(ND) ND	.048	.0096
HEPTACHLOR	3.6 (ND)	.048	.0096
DELTA-BHC	(ND) ND	.048	.0096
ALDRIN	(ND) ND	.048	.0096
HEPTACHLOR EPOXIDE	(ND) ND	.048	.0096
GAMMA-CHLORDANE	(ND) ND	.048	.0096
ALPHA-CHLORDANE	(ND) ND	.048	.0096
ENDOSULFAN I	(ND) ND	.048	.029
4,4'-DDE	(ND) ND	.096	.029
DIELDRIN	(ND) ND	.19	.096
ENDRIN	(ND) ND	.096	.019
4,4'-DDD	(ND) ND	.096	.029
ENDOSULFAN II	(ND) ND	.096	.019
4,4'-DDT	(ND) ND	.096	.019
ENDRIN ALDEHYDE	(ND) ND	.096	.019
ENDOSULFAN SULFATE	(ND) ND	.096	.019
ENDRIN KETONE	(ND) ND	.096	.019
METHOXYCHLOR	(ND) ND	.48	.096
TOXAPHENE	(ND) ND	2.9	1.2

SURROGATE PARAMETERS	% RECOVERY	GC LIMIT
TETRACHLORO-M-XYLENE	(73) 67	30-130
DECACHLOROBIPHENYL	(97) 96	30-130

RL : Reporting limit  
Left of | is related to first column ; Right of | related to second column  
( ) included the reported column



**CASE NARRATIVE**

**CLIENT:** TETRA TECH EC, INC.

**PROJECT:** MFA, SITE 1, CTO 86

**SDG:** 05J036

**METHOD 7470A  
DISSOLVED MERCURY BY COLD VAPOR**

Two (2) water samples were received on 10/06/05 for Dissolved Mercury analysis by Method 7470A in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3<sup>rd</sup> edition.

**1. Holding Time**

Analysis met holding time criteria.

**2. Method Blank**

Method blank was free of contamination at the reporting limit.

**3. Lab Control Sample/Lab Control Sample Duplicate**

Lab control results were within QC limit.

**4. Serial Dilution / Post-Analytical Spike**

Sample J053-10 from another SDG was analyzed for serial dilution and post-analytical spike. All QC requirements were met.

**5. Matrix Spike/Matrix Spike Duplicate**

MS/MSD sample was not designated in this SDG.

**6. Sample Analysis**

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

Samples were initially analyzed at DF 20 due to matrix interference of high salt level.

METHOD 7470A  
DISSOLVED MERCURY BY COLD VAPOR

Client : TETRA TECH EC, INC.  
Project : MFA, SITE 1, CTQ 86  
Batch No. : 05J036

Matrix : WATER  
Instrument ID : T1047

SAMPLE ID	EMAX SAMPLE ID	RESULTS (ug/L)	DLF	MDIST	RL (ug/L)	MDL (ug/L)	Analysis DATE/TIME	Extraction DATE/TIME	LFID	CAL REF	PREP BATCH	Collection DATE/TIME	Received DATE/TIME
MBLK1W	HGJ013WB	ND	1	NA	.2	.1	10/13/05 14:11	10/13/05 11:00	M47J012010	M47J012008	HGJ013W	NA	10/13/05
LCS1W	HGJ013WL	4.99	1	NA	.2	.1	10/13/05 14:13	10/13/05 11:00	M47J012011	M47J012008	HGJ013W	NA	10/13/05
LCD1W	HGJ013WC	5	1	NA	.2	.1	10/13/05 14:15	10/13/05 11:00	M47J012012	M47J012008	HGJ013W	NA	10/13/05
86-S1-124	J036-02	ND	20	NA	4	2	10/13/05 15:48	10/13/05 11:00	M47J012055	M47J012044	HGJ013W	10/04/05	10/06/05
86-S1-125	J036-03	ND	20	NA	4	2	10/13/05 15:55	10/13/05 11:00	M47J012058	M47J012056	HGJ013W	10/04/05	10/06/05

RL: Reporting Limit

7003

**Laboratory Data Consultants, Inc.**  
**Data Validation Report**

**Project/Site Name:** Moffett Air Field, Site 1, CTO 86

**Collection Date:** October 4, 2005

**LDC Report Date:** November 17, 2005

**Matrix:** Water

**Parameters:** Volatiles

**Validation Level:** EPA Level III

**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 05J036

**Sample Identification**

86-S1-137

86-S1-124

86-S1-125

## Introduction

This data review covers 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## **III. Initial Calibration**

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 15.0% for each individual compound and less than or equal to 30.0% for calibration check compounds (CCCs).

In the case where %RSD was greater than 15.0%, the laboratory used a calibration curve to evaluate the compound. All coefficients of determination ( $r^2$ ) were greater than or equal to 0.990 .

For the purposes of technical evaluation, all compounds were evaluated against the 30.0% (%RSD) National Functional Guideline criteria. Unless noted above, all compounds were within the validation criteria.

Average relative response factors (RRF) for all volatile target compounds were within method and validation criteria.

## **IV. Continuing Calibration**

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were within the method criteria of less than or equal to 20.0% for calibration check compounds (CCCs).

For the purposes of technical evaluation, all compounds were evaluated against the 25.0% (%D) National Functional Guideline criteria. Unless noted above, all compounds were within the validation criteria.

Initial calibration verification (ICV) percent differences (%D) were less than or equal to 25.0% for all compounds.

All of the continuing calibration RRF values were within method and validation criteria.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

All internal standard areas and retention times were within QC limits.

## **XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

## **XII. Compound Quantitation and CRQLs**

Raw data were not reviewed for this SDG.

## **XIII. Tentatively Identified Compounds (TICs)**

Raw data were not reviewed for this SDG.

## **XIV. System Performance**

Raw data were not reviewed for this SDG.

## **XV. Overall Assessment**

Data flags are summarized at the end of this report if data has been qualified.

#### **XVI. Field Duplicates**

No field duplicates were identified in this SDG.

#### **XVII. Field Blanks**

Sample 86-S1-137 was identified as a trip blank. No volatile contaminants were found in this blank.

**Moffett Air Field, Site 1, CTO 86**  
**Volatiles - Data Qualification Summary - SDG 05J036**

No Sample Data Qualified in this SDG

**Moffett Air Field, Site 1, CTO 86**  
**Volatiles - Laboratory Blank Data Qualification Summary - SDG 05J036**

No Sample Data Qualified in this SDG



**Laboratory Data Consultants, Inc.**  
**Data Validation Report**

**Project/Site Name:** Moffett Air Field, Site 1, CTO 86

**Collection Date:** October 4, 2005

**LDC Report Date:** November 17, 2005

**Matrix:** Water

**Parameters:** Semivolatiles

**Validation Level:** EPA Level III

**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 05J036

**Sample Identification**

86-S1-124

86-S1-125

## Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270C for Semivolatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## **III. Initial Calibration**

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 15.0% for each individual compound and less than or equal to 30.0% for calibration check compounds (CCCs).

In the case where %RSD was greater than 15.0%, the laboratory used a calibration curve to evaluate the compound. All coefficients of determination ( $r^2$ ) were greater than or equal to 0.990 .

For the purposes of technical evaluation, all compounds were evaluated against the 30.0% (%RSD) National Functional Guideline criteria. Unless noted above, all compounds were within the validation criteria.

Average relative response factors (RRF) for all semivolatile target compounds were within method and validation criteria.

## **IV. Continuing Calibration**

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were within the method criteria of less than or equal to 20.0% for calibration check compounds (CCCs).

For the purposes of technical evaluation, all compounds were evaluated against the 25.0% (%D) National Functional Guideline criteria. Unless noted above, all compounds were within the validation criteria with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
10/14/05	Bis(2-chloroisopropyl)ether 2,4-Dinitrophenol 4-Nitrophenol Benzo(k)fluoranthene	34.9 33.8 25.5 33.6	All samples in SDG 05J036	J (all detects) UU (all non-detects)	A

Initial calibration verification (ICV) percent differences (%D) were less than or equal to 25.0% for all compounds.

All of the continuing calibration RRF values were within method and validation criteria.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No semivolatile contaminants were found in the method blanks.

## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## IX. Regional Quality Assurance and Quality Control

Not applicable.

## X. Internal Standards

All internal standard areas and retention times were within QC limits.

## XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

## **XII. Compound Quantitation and CRQLs**

Raw data were not reviewed for this SDG.

## **XIII. Tentatively Identified Compounds (TICs)**

Raw data were not reviewed for this SDG.

## **XIV. System Performance**

Raw data were not reviewed for this SDG.

## **XV. Overall Assessment**

Data flags are summarized at the end of this report if data has been qualified.

## **XVI. Field Duplicates**

No field duplicates were identified in this SDG.

## **XVII. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Air Field, Site 1, CTO 86**  
**Semivolatiles - Data Qualification Summary - SDG 05J036**

SDG	Sample	Compound	Flag	A or P	Reason
04J036	86-S1-124 86-S1-125	Bis(2-chloroisopropyl)ether 2,4-Dinitrophenol 4-Nitrophenol Benzo(k)fluoranthene	J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)

**Moffett Air Field, Site 1, CTO 86**  
**Semivolatiles - Laboratory Blank Data Qualification Summary - SDG 05J036**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Airfield, Site 1, CTO 86

**Collection Date:** October 4, 2005

**LDC Report Date:** November 17, 2005

**Matrix:** Water

**Parameters:** Chlorinated Pesticides

**Validation Level:** EPA Level III

**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 05J036

**Sample Identification**

86-S1-124

86-S1-125

## Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8081A for Chlorinated Pesticides.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XIV.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.



## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/ECD Instrument Performance Check

Instrument performance was acceptable unless noted otherwise under initial calibration and continuing calibration sections.

## III. Initial Calibration

Initial calibration of single and multicomponent compounds was performed for the primary (quantitation) column and confirmation column as required by this method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

## IV. Continuing Calibration

Continuing calibration was performed at required frequencies.

The percent differences (%D) of calibration factors in continuing standard mixtures were within the 15.0% QC limits with the following exceptions:

Date	Standard	Column	Compound	%D	Associated Samples	Flag	A or P
10/13/05	SJ13003B/4B	RTX-CLPESTII	beta-BHC	19	All samples in SDG 04J036	J (all detects) UJ (all non-detects)	A

Initial calibration verification (ICV) percent differences (%D) were less than or equal to 20.0% for all compounds.

The individual 4,4'-DDT and Endrin breakdowns were less than 15.0% .

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No chlorinated pesticide contaminants were found in the method blanks.

## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Pesticide Cleanup Checks**

### **a. Florisil Cartridge Check**

Florisil cleanup was not required and therefore not performed in this SDG.

### **b. GPC Calibration**

GPC cleanup was not required and therefore not performed in this SDG.

## **XI. Target Compound Identification**

Raw data were not reviewed for this SDG.

## **XII. Compound Quantitation and Reported CRQLs**

Raw data were not reviewed for this SDG.

## **XIII. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

## **XIV. Field Duplicates**

No field duplicates were identified in this SDG.

## **XV. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Airfield, Site 1, CTO 86**

**Chlorinated Pesticides - Data Qualification Summary - SDG 05J036**

No Sample Data Qualified in this SDG

**Moffett Airfield, Site 1, CTO 86**

**Chlorinated Pesticides - Laboratory Blank Data Qualification Summary - SDG 05J036**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.**  
**Data Validation Report**

**Project/Site Name:** Moffett Airfield, Site 1, CTO 86

**Collection Date:** October 4, 2005

**LDC Report Date:** November 17, 2005

**Matrix:** Water

**Parameters:** Polychlorinated Biphenyls

**Validation Level:** EPA Level III

**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 05J036

**Sample Identification**

86-S1-124

86-S1-125

## Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8082 for Polychlorinated Biphenyls.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XIV.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/ECD Instrument Performance Check**

Instrument performance data were not provided and therefore not reviewed.

## **III. Initial Calibration**

Initial calibration of multicomponent compounds was performed for the primary (quantitation) column as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

## **IV. Continuing Calibration**

Continuing calibration was performed at required frequencies.

The percent differences (%D) of calibration factors in continuing standard mixtures were within the 15.0% QC limits.

Initial calibration verification (ICV) percent differences (%D) were less than or equal to 20.0% for all compounds.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No polychlorinated biphenyl contaminants were found in the method blanks.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

### **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

### **IX. Regional Quality Assurance and Quality Control**

Not applicable.

### **X. Pesticide Cleanup Checks**

#### **a. Florisil Cartridge Check**

Florisil cleanup was not required and therefore not performed in this SDG.

#### **b. GPC Calibration**

GPC cleanup was not required and therefore not performed in this SDG.

### **XI. Target Compound Identification**

Raw data were not reviewed for this SDG.

### **XII. Compound Quantitation and Reported CRQLs**

Raw data were not reviewed for this SDG.

### **XIII. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

### **XIV. Field Duplicates**

No field duplicates were identified in this SDG.

### **XV. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Airfield, Site 1, CTO 86**  
**Polychlorinated Biphenyls - Data Qualification Summary - SDG 05J036**

No Sample Data Qualified in this SDG

**Moffett Airfield, Site 1, CTO 86**  
**Polychlorinated Biphenyls - Laboratory Blank Data Qualification Summary - SDG 05J036**

No Sample Data Qualified in this SDG



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Air Field, Site 1, CTO 86

**Collection Date:** October 4, 2005

**LDC Report Date:** November 14, 2005

**Matrix:** Water

**Parameters:** Dissolved Mercury

**Validation Level:** EPA Level III

**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 05J036

**Sample Identification**

86-S1-124

86-S1-125

## Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 7470A for Dissolved Mercury.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (October 2004) as there are no current guidelines for the methods stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

## III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the initial, continuing and preparation blanks.

## IV. ICP Interference Check Sample (ICS) Analysis

ICP was not utilized in this SDG.

## V. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
86-S1-128MS/MSD (All samples in SDG 05J036)	Dissolved mercury	-	67 (75-125)	-	J (all detects) UJ (all non-detects)	A

## VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable.

## VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Internal Standards

ICP-MS was not utilized in this SDG.

#### **IX. Furnace Atomic Absorption QC**

Graphite furnace atomic absorption was not utilized in this SDG.

#### **X. ICP Serial Dilution**

ICP serial dilution was not performed for this SDG.

#### **XI. Sample Result Verification**

Raw data were not reviewed for this SDG.

#### **XII. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

#### **XIII. Field Duplicates**

No field duplicates were identified in this SDG.

#### **XIV. Field Blanks**

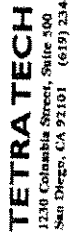
No field blanks were identified in this SDG.

**Moffett Air Field, Site 1, CTO 86**  
**Dissolved Mercury - Data Qualification Summary - SDG 05J036**

SDG	Sample	Analyte	Flag	A or P	Reason
05J036	86-S1-124 86-S1-125	Dissolved mercury	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicates (%R)

**Moffett Air Field, Site 1, CTO 86**  
**Dissolved Mercury - Laboratory Blank Data Qualification Summary - SDG 05J036**

No Sample Data Qualified in this SDG



# CHAIN-OF-CUSTODY RECORD

NUMBER 10899

[illegible]

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management



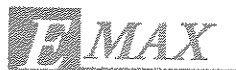
**TETRA TECH**  
1230 Columbia Street, Suite 500  
San Diego, CA 92101 (619) 234-8696

NUMBER 1038

# CHAIN-OF-CUSTODY RECORD

[illegible]

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management



**LABORATORIES, INC.**

1835 W. 205th Street  
Torrance, CA 90501  
Tel: (310) 618-8889  
Fax: (310) 618-0818

Date: 11-03-2005  
EMAX Batch No.: 05J053

Attn: Lynn Jefferson

Tetra Tech EC, Inc.  
1940 E Deere Ave, Suite 200  
Santa Ana CA 92705

Subject: Laboratory Report  
Project: MFA, Site 1, CTO 86

Enclosed is the Laboratory report for samples received on 10/07/05.  
The data reported include :

Sample ID	Control #	Col Date	Matrix	Analysis
86-S1-139	J053-01	10/06/05	WATER	VOLATILE ORGANICS BY GC/MS
86-S1-131	J053-02	10/06/05	WATER	VOLATILE ORGANICS BY GC/MS PESTICIDES ORGANOCHLORINE POLYCHLORINATED BIPHENYLS (PCBS) MERCURY DISSOLVED DISSOLVED METALS IN WATER & WASTE
86-S1-132	J053-03	10/06/05	WATER	SEMIVOLATILE ORGANICS BY GCMS VOLATILE ORGANICS BY GC/MS PESTICIDES ORGANOCHLORINE POLYCHLORINATED BIPHENYLS (PCBS) MERCURY DISSOLVED DISSOLVED METALS IN WATER & WASTE
86-S1-133	J053-04	10/06/05	WATER	SEMIVOLATILE ORGANICS BY GCMS VOLATILE ORGANICS BY GC/MS PESTICIDES ORGANOCHLORINE POLYCHLORINATED BIPHENYLS (PCBS) MERCURY DISSOLVED DISSOLVED METALS IN WATER & WASTE SEMIVOLATILE ORGANICS BY GCMS

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B



Sample ID	Control #	Col Date	Matrix	Analysis
86-S1-134	J053-05	10/06/05	WATER	VOLATILE ORGANICS BY GC/MS PESTICIDES ORGANOCHLORINE POLYCHLORINATED BIPHENYLS (PCBS) MERCURY DISSOLVED DISSOLVED METALS IN WATER & WASTE
86-S1-135	J053-06	10/06/05	WATER	SEMIVOLATILE ORGANICS BY GC/MS VOLATILE ORGANICS BY GC/MS PESTICIDES ORGANOCHLORINE POLYCHLORINATED BIPHENYLS (PCBS) MERCURY DISSOLVED DISSOLVED METALS IN WATER & WASTE
86-S1-136	J053-07	10/06/05	WATER	SEMIVOLATILE ORGANICS BY GC/MS VOLATILE ORGANICS BY GC/MS PESTICIDES ORGANOCHLORINE POLYCHLORINATED BIPHENYLS (PCBS) MERCURY DISSOLVED DISSOLVED METALS IN WATER & WASTE
86-S1-138	J053-08	10/06/05	WATER	SEMIVOLATILE ORGANICS BY GC/MS
86-S1-126	J053-09	10/06/05	WATER	VOLATILE ORGANICS BY GC/MS PESTICIDES ORGANOCHLORINE POLYCHLORINATED BIPHENYLS (PCBS) MERCURY DISSOLVED DISSOLVED METALS IN WATER & WASTE
86-S1-128	J053-10	10/06/05	WATER	SEMIVOLATILE ORGANICS BY GC/MS VOLATILE ORGANICS BY GC/MS PESTICIDES ORGANOCHLORINE POLYCHLORINATED BIPHENYLS (PCBS) MERCURY DISSOLVED DISSOLVED METALS IN WATER & WASTE
86-S1-129	J053-11	10/06/05	WATER	SEMIVOLATILE ORGANICS BY GC/MS VOLATILE ORGANICS BY GC/MS PESTICIDES ORGANOCHLORINE POLYCHLORINATED BIPHENYLS (PCBS) MERCURY DISSOLVED DISSOLVED METALS IN WATER & WASTE
86-S1-130	J053-12	10/06/05	WATER	SEMIVOLATILE ORGANICS BY GC/MS VOLATILE ORGANICS BY GC/MS PESTICIDES ORGANOCHLORINE POLYCHLORINATED BIPHENYLS (PCBS) MERCURY DISSOLVED

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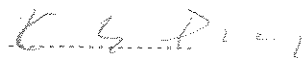
Sample ID	Control #	Col Date	Matrix	Analysis
86-S1-128MS	J053-10M	10/06/05	WATER	DISSOLVED METALS IN WATER & WASTE SEMIVOLATILE ORGANICS BY GC/MS VOLATILE ORGANICS BY GC/MS PESTICIDES ORGANOCHLORINE POLYCHLORINATED BIPHENYLS (PCBS) MERCURY DISSOLVED
86-S1-128MSD	J053-10S	10/06/05	WATER	DISSOLVED METALS IN WATER & WASTE SEMIVOLATILE ORGANICS BY GC/MS VOLATILE ORGANICS BY GC/MS PESTICIDES ORGANOCHLORINE POLYCHLORINATED BIPHENYLS (PCBS) MERCURY DISSOLVED DISSOLVED METALS IN WATER & WASTE SEMIVOLATILE ORGANICS BY GC/MS

Note: Dissolved Metals in water & waste was subcontracted to Columbia and will be submitted at a later date.

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,



Kam Y. Pang, Ph.D.  
Laboratory Director

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**CASE NARRATIVE**

**CLIENT:** TETRA TECH EC, INC.  
**PROJECT:** MFA, SITE 1, CTO 86  
**SDG:** 05J053

**SW 5030B/8260B  
VOLATILE ORGANICS BY GC/MS**

Twelve (12) water samples were received on 10/07/05 for Volatile Organic analysis by Method 5030B/8260B in accordance with USEPA SW846, 3<sup>rd</sup> ed.

**1. Holding Time**

Analytical holding time was met.

**2. Tuning and Calibration**

Tuning and calibration were carried out at 12-hour interval. All QC requirements were met.

**3. Method Blank**

Method blanks were free of contamination at the reporting limit.

**4. Surrogate Recovery**

Recoveries were within QC limit.

**5. Lab Control Sample/Lab Control Sample Duplicate**

Recoveries were within QC limit.

**6. Matrix Spike/Matrix Spike Duplicate**

Sample J053-10 was spiked. All recoveries were within QC limit.

**7. Sample Analysis**

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

SW 5030B/8260B  
VOLATILE ORGANICS BY GC/MS

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Client      : TETRA TECH EC, INC.      Date Collected: 10/06/05
Project     : MFA, SITE 1, CTO 86     Date Received: 10/07/05
Batch No.   : 05J053                  Date Extracted: 10/19/05 20:37
Sample ID   : 86-S1-139                Date Analyzed: 10/19/05 20:37
Lab Samp ID : J053-01N                 Dilution Factor: 1
Lab File ID : RJB278                   Matrix : WATER
Ext Btch ID : V003J23                  % Moisture : NA
Calib. Ref. : RJB044                   Instrument ID : T-003
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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	5	5
1,1,1-TRICHLOROETHANE	ND	5	5
1,1,2,2-TETRACHLOROETHANE	ND	5	5
1,1,2-TRICHLOROETHANE	ND	5	5
1,1-DICHLOROETHANE	ND	5	5
1,1-DICHLOROETHENE	ND	5	5
1,1-DICHLOROPROPENE	ND	5	5
1,2,3-TRICHLOROBENZENE	ND	5	5
1,2,3-TRICHLOROPROPANE	ND	5	5
1,2,4-TRICHLOROBENZENE	ND	5	5
1,2,4-TRIMETHYLBENZENE	ND	5	5
1,2-DIBROMO-3-CHLOROPROPANE	ND	5	5
1,2-DICHLOROBENZENE	ND	5	5
1,2-DICHLOROETHANE	ND	5	5
1,2-DICHLOROPROPANE	ND	5	5
1,2,5-TRIMETHYLBENZENE	ND	5	5
1,3-DICHLOROBENZENE	ND	5	5
1,3-DICHLOROPROPANE	ND	5	5
1,4-DICHLOROBENZENE	ND	5	5
2,2-DICHLOROPROPANE	ND	5	5
2-BUTANONE	ND	10	5
2-CHLOROTOLUENE	ND	10	5
2-HEXANONE	ND	10	5
4-CHLOROTOLUENE	ND	10	5
4-METHYL-2-PENTANONE	ND	10	5
ACETONE	ND	10	5
BENZENE	ND	5	5
BROMOBENZENE	ND	5	5
BROMOCHLOROMETHANE	ND	5	5
BROMODICHLOROMETHANE	ND	5	5
BROMOFORM	ND	5	5
BROMOMETHANE	ND	5	5
CARBON DISULFIDE	ND	5	5
CARBON TETRACHLORIDE	ND	5	5
CHLOROBENZENE	ND	5	5
CHLOROETHANE	ND	5	5
CHLOROFORM	ND	5	5
CHLOROMETHANE	ND	5	5
CIS-1,2-DICHLOROETHENE	ND	5	5
CIS-1,3-DICHLOROPROPENE	ND	5	5
DIBROMOCHLOROMETHANE	ND	5	5
DIBROMOMETHANE	ND	5	5
DICHLORODIFLUOROMETHANE	ND	5	5
ETHYLBENZENE	ND	5	5
HEXACHLOROBUTADIENE	ND	5	5
ISOPROPYL BENZENE	ND	5	5
M/P-XYLENES	ND	5	5
METHYLENE CHLORIDE	ND	5	5
N-BUTYLBENZENE	ND	5	5
N-PROPYLBENZENE	ND	5	5
NAPHTHALENE	ND	5	5
O-XYLENE	ND	5	5
P-ISOPROPYLTOLUENE	ND	5	5
SEC-BUTYLBENZENE	ND	5	5
STYRENE	ND	5	5
TERT-BUTYLBENZENE	ND	5	5
TETRACHLOROETHYLENE	ND	5	5
TOLUENE	ND	5	5
TRANS-1,2-DICHLOROETHENE	ND	5	5
TRANS-1,3-DICHLOROPROPENE	ND	5	5
TRICHLOROETHENE	ND	5	5
TRICHLOROFUOROMETHANE	ND	5	5
VINYL CHLORIDE	ND	5	5
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
1,2-DICHLOROETHANE-D4	100	62-139	
TOLUENE-D8	102	75-125	
BROMOFLUOROBENZENE	107	75-125	

R.L. : Reporting limit  
 \* : Out of QC  
 E : Exceeded calibration range  
 B : Found in associated method blank  
 J : Value between R.L. and MDL  
 D : Value from dilution analysis  
 D.O. : Diluted out

SW 50308/82608  
VOLATILE ORGANICS BY GC/MS

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=====
Client       : TETRA TECH EC, INC.      Date Collected: 10/06/05
Project      : MFA SITE 1, CTO 86      Date Received: 10/07/05
Batch No.    : 05J053                  Date Extracted: 10/19/05 21:15
Sample ID    : 86-S1-131                Date Analyzed: 10/19/05 21:15
Lab Samp ID  : J053-02N                 Dilution Factor: 1
Lab File ID  : RJ8279                   Matrix          : WATER
Ext Btch ID  : V003J23                  % Moisture       : NA
Calib. Ref.  : RJ8044                   Instrument ID    : T-003
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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	.5	.2
1,1,1-TRICHLOROETHANE	ND	.5	.2
1,1,2,2-TETRACHLOROETHANE	ND	.5	.2
1,1,2-TRICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHENE	ND	.5	.2
1,1-DICHLOROPROPENE	ND	.5	.2
2,3-TRICHLOROBENZENE	ND	.5	.2
2,3-TRICHLOROPROPANE	ND	.5	.2
2,4-TRICHLOROBENZENE	ND	.5	.2
2,4-TRIMETHYLBENZENE	ND	.5	.2
2-DIBROMO-3-CHLOROPROPANE	ND	.5	.2
2-DICHLOROBENZENE	ND	.5	.2
2-DICHLOROETHANE	ND	.5	.2
2-DICHLOROPROPANE	ND	.5	.2
3,5-TRIMETHYLBENZENE	ND	.5	.2
3-DICHLOROBENZENE	ND	.5	.2
3-DICHLOROPROPANE	ND	.5	.2
4-DICHLOROBENZENE	ND	.5	.2
2,2-DICHLOROPROPANE	ND	.5	.2
2-BUTANONE	ND	10	.2
2-CHLOROTOLUENE	ND	.5	.2
2-HEXANONE	ND	10	.2
4-CHLOROTOLUENE	ND	.5	.2
4-METHYL-2-PENTANONE	ND	10	.2
ACETONE	ND	10	.2
BENZENE	ND	.5	.2
BROMOBENZENE	ND	.5	.2
BROMOCHLOROMETHANE	ND	.5	.2
BROMODICHLOROMETHANE	ND	.5	.2
BROMOFORM	ND	.5	.2
BROMOMETHANE	ND	.5	.2
CARBON DISULFIDE	ND	.5	.2
CARBON TETRACHLORIDE	ND	.5	.2
CHLOROBENZENE	ND	.5	.2
CHLOROETHANE	ND	.5	.2
CHLOROFORM	ND	.5	.2
CHLOROMETHANE	ND	.5	.2
CIS-1,2-DICHLOROETHENE	ND	.5	.2
CIS-1,3-DICHLOROPROPENE	ND	.5	.2
DIBROMOCHLOROMETHANE	ND	.5	.2
DIBROMOMETHANE	ND	.5	.2
DICHLORODIFLUOROMETHANE	ND	.5	.2
ETHYLBENZENE	ND	.5	.2
HEXACHLOROBTADIENE	ND	.5	.2
ISOPROPYL BENZENE	ND	.5	.2
M/P-XYLENES	ND	.5	.2
METHYLENE CHLORIDE	ND	.5	.2
N-BUTYLBENZENE	ND	.5	.2
N-PROPYLBENZENE	ND	.5	.2
NAPHTHALENE	ND	.5	.2
O-XYLENE	ND	.5	.2
P-ISOPROPYLTOLUENE	ND	.5	.2
SEC-BUTYLBENZENE	ND	.5	.2
STYRENE	ND	.5	.2
TERT-BUTYLBENZENE	ND	.5	.2
TETRACHLOROETHYLENE	ND	.5	.2
TOLUENE	ND	.5	.2
TRANS-1,2-DICHLOROETHENE	ND	.5	.2
TRANS-1,3-DICHLOROPROPENE	ND	.5	.2
TRICHLOROETHENE	ND	.5	.2
TRICHLOROFLUOROMETHANE	ND	.5	.2
VINYL CHLORIDE	ND	.5	.2
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
1,2-DICHLOROETHANE-D4	121	62-139	
TOLUENE-D8	97	75-125	
BROMOFLUOROBENZENE	102	75-125	

R.L. : Reporting limit  
 \* : Out of QC  
 E : Exceeded calibration range  
 B : Found in associated method blank  
 J : Value between R.L. and MDL  
 D : Value from dilution analysis  
 D.O. : Diluted out

SW 50308/82608  
VOLATILE ORGANICS BY GC/MS

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=====
Client      : TETRA TECH EC, INC.      Date Collected: 10/06/05
Project     : MFA, SITE 1, CTO 86     Date Received: 10/07/05
Batch No.   : 05J053                  Date Extracted: 10/19/05 21:53
Sample ID   : 86-S1-132                Date Analyzed: 10/19/05 21:53
Lab Samp ID : J053-03N                  Dilution Factor: 1
Lab File ID : RJB280                    Matrix          : WATER
Ext Btch ID : V003J23                    % Moisture      : NA
Calib. Ref. : RJB044                    Instrument ID   : T-003
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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	5	5
1,1,1-TRICHLOROETHANE	ND	5	5
1,1,2,2-TETRACHLOROETHANE	ND	5	5
1,1,2-TRICHLOROETHANE	ND	5	5
1,1-DICHLOROETHANE	ND	5	5
1,1-DICHLOROETHENE	ND	5	5
1,1-DICHLOROPROPENE	ND	5	5
1,2,3-TRICHLOROBENZENE	ND	5	5
1,2,3-TRICHLOROPROPANE	ND	5	5
1,2,4-TRICHLOROBENZENE	ND	5	5
1,2,4-TRIMETHYLBENZENE	ND	5	5
1,2-DIBROMO-3-CHLOROPROPANE	ND	5	5
1,2-DICHLOROBENZENE	ND	5	5
1,2-DICHLOROETHANE	ND	5	5
1,2-DICHLOROPROPANE	ND	5	5
1,3,5-TRIMETHYLBENZENE	ND	5	5
1,3-DICHLOROBENZENE	ND	5	5
1,3-DICHLOROPROPANE	ND	5	5
1,4-DICHLOROBENZENE	ND	5	5
2,2-DICHLOROPROPANE	ND	5	5
2-BUTANONE	ND	5	5
2-CHLOROTOLUENE	ND	5	5
2-HEXANONE	ND	5	5
4-CHLOROTOLUENE	ND	5	5
4-METHYL-2-PENTANONE	ND	5	5
ACETONE	ND	5	5
BENZENE	ND	5	5
BROMOBENZENE	ND	5	5
BROMOCHLOROMETHANE	ND	5	5
BROMODICHLOROMETHANE	ND	5	5
BROMOFORM	ND	5	5
BROMOMETHANE	ND	5	5
CARBON DISULFIDE	ND	5	5
CARBON TETRACHLORIDE	ND	5	5
CHLOROBENZENE	ND	5	5
CHLOROETHANE	ND	5	5
CHLOROFORM	ND	5	5
CHLOROMETHANE	ND	5	5
CIS-1,2-DICHLOROETHENE	ND	5	5
CIS-1,3-DICHLOROPROPENE	ND	5	5
DIBROMOCHLOROMETHANE	ND	5	5
DIBROMOMETHANE	ND	5	5
DICHLORODIFLUOROMETHANE	ND	5	5
ETHYLBENZENE	ND	5	5
HEXACHLOROBUTADIENE	ND	5	5
ISOPROPYL BENZENE	ND	5	5
M/P-XYLENES	ND	5	5
METHYLENE CHLORIDE	ND	5	5
N-BUTYLBENZENE	ND	5	5
N-PROPYLBENZENE	ND	5	5
NAPHTHALENE	ND	5	5
O-XYLENE	ND	5	5
P-ISOPROPYLTOLUENE	ND	5	5
SEC-BUTYLBENZENE	ND	5	5
STYRENE	ND	5	5
TERT-BUTYLBENZENE	ND	5	5
TETRACHLOROETHYLENE	ND	5	5
TOLUENE	ND	5	5
TRANS-1,2-DICHLOROETHENE	ND	5	5
TRANS-1,3-DICHLOROPROPENE	ND	5	5
TRICHLOROETHENE	ND	5	5
TRICHLOROFLUOROMETHANE	ND	5	5
VINYL CHLORIDE	ND	5	5
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
1,2-DICHLOROETHANE-D4	131	62-139	
TOLUENE-D8	98	75-125	
BROMOFLUOROBENZENE	108	75-125	

R.L. : Reporting Limit  
 \* : Out of QC  
 E : Exceeded calibration range  
 B : Found in associated method blank  
 J : Value between R.L. and MDL  
 D : Value from dilution analysis  
 D.O. : Diluted out

SW 50308/82608  
VOLATILE ORGANICS BY GC/MS

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=====
Client      : TETRA TECH EC, INC.      Date Collected: 10/06/05
Project     : MFA, SITE 1, CTO 86     Date Received: 10/07/05
Batch No.   : 05J053                  Date Extracted: 10/19/05 22:31
Sample ID   : 86-S1-133               Date Analyzed: 10/19/05 22:31
Lab Samp ID : J053-04N                Dilution Factor: 1
Lab File ID : RJB281                  Matrix : WATER
Ext Btch ID : V003J23                 % Moisture : NA
Calib. Ref. : RJB044                  Instrument ID : T-003
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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	.5	.2
1,1,1-TRICHLOROETHANE	ND	.5	.2
1,1,2,2-TETRACHLOROETHANE	ND	.5	.2
1,1,2-TRICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHENE	ND	.5	.2
1,1-DICHLOROPROPENE	ND	.5	.2
1,2,3-TRICHLOROBENZENE	ND	.5	.2
1,2,3-TRICHLOROPROPANE	ND	.5	.2
1,2,4-TRICHLOROBENZENE	ND	.5	.2
1,2,4-TRIMETHYLBENZENE	ND	.5	.2
1,2-DIBROMO-3-CHLOROPROPANE	ND	.5	.2
1,2-DICHLOROBENZENE	ND	.5	.2
1,2-DICHLOROETHANE	ND	.5	.2
1,2-DICHLOROPROPANE	ND	.5	.2
1,2,5-TRIMETHYLBENZENE	ND	.5	.2
1,3-DICHLOROBENZENE	ND	.5	.2
1,3-DICHLOROPROPANE	ND	.5	.2
1,4-DICHLOROBENZENE	ND	.5	.2
2,2-DICHLOROPROPANE	ND	.5	.2
2-BUTANONE	ND	10	.5
2-CHLOROTOLUENE	ND	.5	.2
2-HEXANONE	ND	10	.5
4-CHLOROTOLUENE	ND	.5	.2
4-METHYL-2-PENTANONE	ND	10	.5
ACETONE	ND	10	.2
BENZENE	ND	.5	.2
BROMOBENZENE	ND	.5	.2
BROMOCHLOROMETHANE	ND	.5	.2
BROMODICHLOROMETHANE	ND	.5	.2
BROMOFORM	ND	.5	.2
BROMOMETHANE	ND	.5	.2
CARBON DISULFIDE	ND	.5	.2
CARBON TETRACHLORIDE	ND	.5	.2
CHLOROBENZENE	ND	.5	.2
CHLOROETHANE	ND	.5	.2
CHLOROFORM	ND	.5	.2
CHLOROMETHANE	ND	.5	.2
CIS-1,2-DICHLOROETHENE	ND	.5	.2
CIS-1,3-DICHLOROPROPENE	ND	.5	.2
DIBROMOCHLOROMETHANE	ND	.5	.2
DIBROMOMETHANE	ND	.5	.2
DICHLORODIFLUOROMETHANE	ND	.5	.2
ETHYLBENZENE	ND	.5	.2
HEXACHLOROBUTADIENE	ND	.5	.2
ISOPROPYL BENZENE	ND	.5	.2
M/P-XYLENES	ND	.5	.2
METHYLENE CHLORIDE	ND	.5	.2
N-BUTYLBENZENE	ND	.5	.2
N-PROPYLBENZENE	ND	.5	.2
NAPHTHALENE	ND	.5	.2
O-XYLENE	ND	.5	.2
P-ISOPROPYLTOLUENE	ND	.5	.2
SEC-BUTYLBENZENE	ND	.5	.2
STYRENE	ND	.5	.2
TERT-BUTYLBENZENE	ND	.5	.2
TETRACHLOROETHYLENE	ND	.5	.2
TOLUENE	ND	.5	.2
TRANS-1,2-DICHLOROETHENE	ND	.5	.2
TRANS-1,3-DICHLOROPROPENE	ND	.5	.2
TRICHLOROETHENE	ND	.5	.2
TRICHLOROFUOROMETHANE	ND	.5	.2
VINYL CHLORIDE	ND	.5	.2
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
1,2-DICHLOROETHANE-D4	133	62-139	
TOLUENE-D8	99	75-125	
BROMOFLUOROBENZENE	105	75-125	

R.L. : Reporting limit  
 \* : Out of QC  
 E : Exceeded calibration range  
 B : Found in associated method blank  
 J : Value between R.L. and MDL  
 D : Value from dilution analysis  
 D.O. : Diluted out

SW 5030B/8260B  
VOLATILE ORGANICS BY GC/MS

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=====
Client      : TETRA TECH EC, INC.      Date Collected: 10/06/05
Project     : MFA, SITE 1, CTO 86     Date Received: 10/07/05
Batch No.   : 05J053                  Date Extracted: 10/19/05 23:09
Sample ID   : 86-S1-134               Date Analyzed: 10/19/05 23:09
Lab Samp ID : J053-05N                Dilution Factor: 1
Lab File ID : RJB282                  Matrix      : WATER
Ext Btch ID : V003J23                 % Moisture   : NA
Calib. Ref. : RJB044                  Instrument ID : T-003
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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	.5	.2
1,1,1-TRICHLOROETHANE	ND	.5	.3
1,1,2,2-TETRACHLOROETHANE	ND	.1	.3
1,1,2-TRICHLOROETHANE	ND	.5	.3
1,1-DICHLOROETHANE	ND	.5	.3
1,1-DICHLOROETHENE	ND	.5	.3
1,1-DICHLOROPROPENE	ND	.5	.3
1,2,3-TRICHLOROBENZENE	ND	.5	.3
1,2,3-TRICHLOROPROPANE	ND	.5	.3
1,2,4-TRICHLOROBENZENE	ND	.5	.3
1,2,4-TRIMETHYLBENZENE	ND	.5	.3
1,2-DIBROMO-3-CHLOROPROPANE	ND	.5	.1
1,2-DICHLOROBENZENE	ND	.5	.2
1,2-DICHLOROETHANE	ND	.5	.3
1,2-DICHLOROPROPANE	ND	.5	.3
1,3,5-TRIMETHYLBENZENE	ND	.5	.3
1,3-DICHLOROBENZENE	ND	.5	.3
1,3-DICHLOROPROPANE	ND	.5	.3
1,4-DICHLOROBENZENE	ND	.5	.3
2,2-DICHLOROPROPANE	ND	.5	.3
2-BUTANONE	ND	10	.3
2-CHLOROTOLUENE	ND	.5	.3
2-HEXANONE	ND	10	.3
4-CHLOROTOLUENE	ND	.5	.3
4-METHYL-2-PENTANONE	ND	10	.3
ACETONE	ND	10	.3
BENZENE	ND	.5	.3
BROMOBENZENE	ND	.5	.3
BROMOCHLOROMETHANE	ND	.5	.3
BROMODICHLOROMETHANE	ND	.5	.3
BROMOFORM	ND	.5	.3
BROMOMETHANE	ND	.5	.3
CARBON DISULFIDE	ND	.5	.3
CARBON TETRACHLORIDE	ND	.5	.3
CHLOROBENZENE	ND	.5	.3
CHLOROETHANE	ND	.5	.3
CHLOROFORM	ND	.5	.3
CHLOROMETHANE	ND	.5	.3
CIS-1,2-DICHLOROETHENE	ND	.5	.3
CIS-1,3-DICHLOROPROPENE	ND	.5	.3
DIBROMOCHLOROMETHANE	ND	.5	.3
DIBROMOMETHANE	ND	.5	.3
DICHLORODIFLUOROMETHANE	ND	.5	.3
ETHYLBENZENE	ND	.5	.3
HEXACHLOROBUTADIENE	ND	.5	.3
ISOPROPYL BENZENE	ND	.5	.3
M/P-XYLENES	ND	.5	.3
METHYLENE CHLORIDE	ND	.5	.3
N-BUTYLBENZENE	ND	.5	.3
N-PROPYLBENZENE	ND	.5	.3
NAPHTHALENE	ND	.5	.3
O-XYLENE	ND	.5	.3
P-ISOPROPYLTOLUENE	ND	.5	.3
SEC-BUTYLBENZENE	ND	.5	.3
STYRENE	ND	.5	.3
TERT-BUTYLBENZENE	ND	.5	.3
TETRACHLOROETHYLENE	ND	.5	.3
TOLUENE	ND	.5	.3
TRANS-1,2-DICHLOROETHENE	ND	.5	.3
TRANS-1,3-DICHLOROPROPENE	ND	.5	.3
TRICHLOROETHENE	ND	.5	.3
TRICHLOROFLUOROMETHANE	ND	.5	.3
VINYL CHLORIDE	ND	.1	.3

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	135	62-139
TOLUENE-D8	98	75-125
BROMOFLUOROBENZENE	109	75-125

R.L. : Reporting limit  
 \* : Out of QC  
 E : Exceeded calibration range  
 B : Found in associated method blank  
 J : Value between R.L. and MDL  
 D : Value from dilution analysis  
 D.O. : Diluted out



SW 50308/82608  
VOLATILE ORGANICS BY GC/MS

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=====
Client      : TETRA TECH EC, INC.      Date Collected: 10/06/05
Project     : MFA, SITE 1, CTO 86     Date Received: 10/07/05
Batch No.   : 05J053                  Date Extracted: 10/19/05 23:47
Sample ID   : 86-S1-135                Date Analyzed: 10/19/05 23:47
Lab Samp ID : J053-06W                  Dilution Factor: 1
Lab File ID : RJB283                     Matrix: WATER
Ext Btch ID : V003J23                    % Moisture: NA
Calib. Ref. : RJB044                     Instrument ID: T-003
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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	.5	.3
1,1,1-TRICHLOROETHANE	ND	.5	.3
1,1,2,2-TETRACHLOROETHANE	ND	.1	.05
1,1,2-TRICHLOROETHANE	ND	.5	.3
1,1-DICHLOROETHANE	ND	.5	.3
1,1-DICHLOROETHENE	ND	.5	.3
1,1-DICHLOROPROPENE	ND	.5	.3
1,2,3-TRICHLOROBENZENE	ND	.5	.3
1,2,3-TRICHLOROPROPANE	ND	.5	.3
1,2,4-TRICHLOROBENZENE	ND	.5	.3
1,2,4-TRIMETHYLBENZENE	ND	.5	.3
1,2-DIBROMO-3-CHLOROPROPANE	ND	.5	.3
1,2-DICHLOROBENZENE	ND	.5	.3
1,2-DICHLOROETHANE	ND	.5	.3
1,2-DICHLOROPROPANE	ND	.5	.3
1,3,5-TRIMETHYLBENZENE	ND	.5	.3
1,3-DICHLOROBENZENE	ND	.5	.3
1,3-DICHLOROPROPANE	ND	.5	.3
1,4-DICHLOROBENZENE	ND	.5	.3
2,2-DICHLOROPROPANE	ND	.5	.3
2-BUTANONE	ND	.5	.3
2-CHLOROTOLUENE	ND	.5	.3
2-HEXANONE	ND	.5	.3
4-CHLOROTOLUENE	ND	.5	.3
4-METHYL-2-PENTANONE	ND	.5	.3
ACETONE	ND	.5	.3
BENZENE	ND	.5	.3
BROMOBENZENE	ND	.5	.3
BROMOCHLOROMETHANE	ND	.5	.3
BROMODICHLOROMETHANE	ND	.5	.3
BROMOFORM	ND	.5	.3
BROMOMETHANE	ND	.5	.3
CARBON DISULFIDE	ND	.5	.3
CARBON TETRACHLORIDE	ND	.5	.3
CHLOROBENZENE	ND	.5	.3
CHLOROETHANE	ND	.5	.3
CHLOROFORM	ND	.5	.3
CHLOROMETHANE	ND	.5	.3
CIS-1,2-DICHLOROETHENE	ND	.5	.3
CIS-1,3-DICHLOROPROPENE	ND	.5	.3
DIBROMOCHLOROMETHANE	ND	.5	.3
DIBROMOMETHANE	ND	.5	.3
DICHLORODIFLUOROMETHANE	ND	.5	.3
ETHYLBENZENE	ND	.5	.3
HEXACHLOROBUTADIENE	ND	.5	.3
ISOPROPYL BENZENE	ND	.5	.3
M/P-XYLENES	ND	.5	.3
METHYLENE CHLORIDE	ND	.5	.3
N-BUTYLBENZENE	ND	.5	.3
N-PROPYLBENZENE	ND	.5	.3
NAPHTHALENE	ND	.5	.3
O-XYLENE	ND	.5	.3
P-ISOPROPYLTOLUENE	ND	.5	.3
SEC-BUTYLBENZENE	ND	.5	.3
STYRENE	ND	.5	.3
TERT-BUTYLBENZENE	ND	.5	.3
TETRACHLOROETHYLENE	ND	.5	.3
TOLUENE	ND	.5	.3
TRANS-1,2-DICHLOROETHENE	ND	.5	.3
TRANS-1,3-DICHLOROPROPENE	ND	.5	.3
TRICHLOROETHENE	ND	.5	.3
TRICHLOROFLUOROMETHANE	ND	.5	.3
VINYL CHLORIDE	ND	.5	.3
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
1,2-DICHLOROETHANE-D4	135	62-139	
TOLUENE-D8	96	75-125	
BROMOFLUOROBENZENE	109	75-125	

R.L. : Reporting limit  
 \* : Out of QC  
 E : Exceeded calibration range  
 B : Found in associated method blank  
 J : Value between R.L. and MDL  
 D : Value from dilution analysis  
 D.O. : Diluted out

SW 50308/82608  
VOLATILE ORGANICS BY GC/MS

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Client   : TETRA TECH EC, INC.      Date Collected: 10/06/05
Project  : MFA, SITE 1, CTO 86     Date Received: 10/07/05
Batch No. : 05J053                 Date Extracted: 10/16/05 07:59
Sample ID: 86-S1-136               Date Analyzed: 10/16/05 07:59
Lab Samp ID: J053-07                Dilution Factor: 1
Lab File ID: RJ0485                 Matrix : WATER
Ext Btch ID: V005J40                % Moisture : NA
Calib. Ref.: R10499                 Instrument ID : T-005
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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	.5	.2
1,1,1-TRICHLOROETHANE	ND	.5	.2
1,1,2,2-TETRACHLOROETHANE	ND	.1	.3
1,1,2-TRICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHENE	ND	.5	.2
1,1-DICHLOROPROPENE	ND	.5	.2
1,2,3-TRICHLOROBENZENE	ND	.5	.2
1,2,3-TRICHLOROPROPANE	ND	.5	.2
1,2,4-TRICHLOROBENZENE	ND	.5	.2
1,2,4-TRIMETHYLBENZENE	ND	.5	.2
1,2-DIBROMO-3-CHLOROPROPANE	ND	.2	.1
1,2-DICHLOROBENZENE	ND	.5	.2
1,2-DICHLOROETHANE	ND	.5	.2
1,2-DICHLOROPROPANE	ND	.5	.2
1,3,5-TRIMETHYLBENZENE	ND	.5	.2
1,3-DICHLOROBENZENE	ND	.5	.2
1,3-DICHLOROPROPANE	ND	.5	.2
1,4-DICHLOROBENZENE	ND	.5	.2
2,2-DICHLOROPROPANE	ND	.5	.2
2-BUTANONE	ND	10	.5
2-CHLOROTOLUENE	ND	.5	.2
2-HEXANONE	ND	10	.1
4-CHLOROTOLUENE	ND	.5	.2
4-METHYL-2-PENTANONE	ND	10	.1
ACETONE	ND	10	.2
BENZENE	ND	.5	.2
BROMOBENZENE	ND	.5	.2
BROMOCHLOROMETHANE	ND	.5	.2
BROMODICHLOROMETHANE	ND	.5	.2
BROMOFORM	ND	.1	.5
BROMOMETHANE	ND	.1	.2
CARBON DISULFIDE	ND	.5	.2
CARBON TETRACHLORIDE	ND	.5	.2
CHLOROBENZENE	ND	.5	.2
CHLOROETHANE	ND	.1	.2
CHLOROFORM	ND	.5	.2
CHLOROMETHANE	ND	.1	.5
CIS-1,2-DICHLOROETHENE	ND	.5	.2
CIS-1,3-DICHLOROPROPENE	ND	.5	.2
DIBROMOCHLOROMETHANE	ND	.5	.2
DIBROMOMETHANE	ND	.5	.2
DICHLORODIFLUOROMETHANE	ND	.1	.5
ETHYLBENZENE	ND	.5	.2
HEXACHLOROBUTADIENE	ND	.5	.2
ISOPROPYL BENZENE	ND	.5	.2
M/P-XYLENES	ND	.1	.3
METHYLENE CHLORIDE	ND	.2	.1
N-BUTYLBENZENE	ND	.5	.2
N-PROPYLBENZENE	ND	.5	.2
NAPHTHALENE	ND	.5	.2
O-XYLENE	ND	.5	.2
P-ISOPROPYLTOLUENE	ND	.5	.2
SEC-BUTYLBENZENE	ND	.5	.2
STYRENE	ND	.5	.2
TERT-BUTYLBENZENE	ND	.5	.2
TETRACHLOROETHYLENE	ND	.5	.2
TOLUENE	ND	.5	.2
TRANS-1,2-DICHLOROETHENE	ND	.5	.2
TRANS-1,3-DICHLOROPROPENE	ND	.5	.2
TRICHLOROETHENE	ND	.5	.2
TRICHLOROFLUOROMETHANE	ND	.1	.5
VINYL CHLORIDE	ND	.1	.5

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	124	62-139
TOLUENE-D8	101	75-125
BROMOFLUOROBENZENE	99	75-125

R.L. : Reporting limit  
 \* : Out of QC  
 E : Exceeded calibration range  
 B : Found in associated method blank  
 J : Value between R.L. and MDL  
 D : Value from dilution analysis  
 D.O. : Diluted out

SW 5030B/8260B  
 VOLATILE ORGANICS BY GC/MS

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Client       : TETRA TECH EC, INC.      Date Collected: 10/06/05
Project      : MFA SITE 1, CTO 86      Date Received: 10/07/05
Batch No.    : 05J053                  Date Extracted: 10/16/05 08:36
Sample ID    : 86-S1-138                Date Analyzed: 10/16/05 08:36
Lab Samp ID  : J053-08                  Dilution Factor: 1
Lab File ID  : RJ0486                    Matrix          : WATER
Ext Btch ID  : V005J40                  % Moisture      : NA
Calib. Ref.  : R10499                    Instrument ID   : T-005
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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	.5	.2
1,1,1-TRICHLOROETHANE	ND	.5	.3
1,1,2,2-TETRACHLOROETHANE	ND	.4	.3
1,1,2-TRICHLOROETHANE	ND	.5	.3
1,1-DICHLOROETHANE	ND	.5	.3
1,1-DICHLOROETHENE	ND	.5	.3
1,1-DICHLOROPROPENE	ND	.5	.3
1,2,3-TRICHLOROBENZENE	ND	.5	.3
1,2,3-TRICHLOROPROPANE	ND	.5	.3
1,2,4-TRICHLOROBENZENE	ND	.5	.3
1,2,4-TRIMETHYLBENZENE	ND	.5	.3
1,2-DIBROMO-3-CHLOROPROPANE	ND	.5	.4
1,2-DICHLOROBENZENE	ND	.5	.2
1,2-DICHLOROETHANE	ND	.5	.3
1,2-DICHLOROPROPANE	ND	.5	.3
1,3,5-TRIMETHYLBENZENE	ND	.5	.3
1,3-DICHLOROBENZENE	ND	.5	.3
1,3-DICHLOROPROPANE	ND	.5	.3
1,4-DICHLOROBENZENE	ND	.5	.3
2,2-DICHLOROPROPANE	ND	.5	.3
2-BUTANONE	ND	10	.5
2-CHLOROTOLUENE	ND	.5	.3
2-HEXANONE	ND	10	.4
4-CHLOROTOLUENE	ND	.5	.3
4-METHYL-2-PENTANONE	ND	10	.4
ACETONE	ND	10	.3
BENZENE	ND	.5	.3
BROMOBENZENE	ND	.5	.3
BROMOCHLOROMETHANE	ND	.5	.3
BROMODICHLOROMETHANE	ND	.5	.3
BROMOFORM	ND	.1	.3
BROMOMETHANE	ND	.1	.3
CARBON DISULFIDE	ND	.5	.3
CARBON TETRACHLORIDE	ND	.5	.3
CHLOROBENZENE	ND	.5	.3
CHLOROETHANE	ND	.1	.3
CHLOROFORM	ND	.5	.3
CHLOROMETHANE	ND	.1	.3
CIS-1,2-DICHLOROETHENE	ND	.5	.3
CIS-1,3-DICHLOROPROPENE	ND	.5	.3
DIBROMOCHLOROMETHANE	ND	.5	.3
DIBROMOMETHANE	ND	.5	.3
DICHLORODIFLUOROMETHANE	ND	.1	.3
ETHYLBENZENE	ND	.5	.3
HEXACHLOROBUTADIENE	ND	.5	.3
ISOPROPYL BENZENE	ND	.5	.3
M/P-XYLENES	ND	.1	.3
METHYLENE CHLORIDE	ND	.2	.4
N-BUTYLBENZENE	ND	.5	.3
N-PROPYLBENZENE	ND	.5	.3
NAPHTHALENE	ND	.5	.3
O-XYLENE	ND	.5	.3
P-ISOPROPYLTOLUENE	ND	.5	.3
SEC-BUTYLBENZENE	ND	.5	.3
STYRENE	ND	.5	.3
TERT-BUTYLBENZENE	ND	.5	.3
TETRACHLOROETHYLENE	ND	.5	.3
TOLUENE	ND	.5	.3
TRANS-1,2-DICHLOROETHENE	ND	.5	.3
TRANS-1,3-DICHLOROPROPENE	ND	.5	.3
TRICHLOROETHENE	ND	.5	.3
TRICHLOROFLUOROMETHANE	ND	.1	.3
VINYL CHLORIDE	ND	.1	.3
SURROGATE PARAMETERS			
	% RECOVERY	QC LIMIT	
1,2-DICHLOROETHANE-D4	107	62-139	
TOLUENE-D8	104	75-125	
BROMOFLUOROBENZENE	106	75-125	

R.L. : Reporting limit  
 \* : Out of QC  
 E : Exceeded calibration range  
 B : Found in associated method blank  
 J : Value between R.L. and MDL  
 D : Value from dilution analysis  
 D.O. : Diluted out

SW 5030B/8260B  
VOLATILE ORGANICS BY GC/MS

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Client   : TETRA TECH EC, INC.      Date Collected: 10/06/05
Project  : MFA, SITE 1, CTO 86     Date Received: 10/07/05
Batch No.: 05J053                  Date Extracted: 10/16/05 09:14
Sample ID: 86-S1-126               Date Analyzed: 10/16/05 09:14
Lab Smp ID: J053-09                Dilution Factor: 1
Lab File ID: RJ0487                Matrix : WATER
Ext Btch ID: V005J40               % Moisture : NA
Calib. Ref.: RIQ499                Instrument ID : T-005
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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,2-TETRACHLOROETHANE	ND	5	3
1,1,1-TRICHLOROETHANE	ND	5	3
1,2,2-TETRACHLOROETHANE	ND	5	3
1,2,1-TRICHLOROETHANE	ND	5	3
1,1-DICHLOROETHANE	ND	5	3
1,1-DICHLOROETHENE	ND	5	3
1,1-DICHLOROPROPENE	ND	5	3
1,2,3-TRICHLOROBENZENE	ND	5	3
1,2,3-TRICHLOROPROPANE	ND	5	3
1,2,4-TRICHLOROBENZENE	ND	5	3
1,2,4-TRIMETHYLBENZENE	ND	5	3
1,2-DIBROMO-3-CHLOROPROPANE	ND	5	3
1,2-DICHLOROBENZENE	ND	5	3
1,2-DICHLOROETHANE	ND	5	3
1,2-DICHLOROPROPANE	ND	5	3
1,3,5-TRIMETHYLBENZENE	ND	5	3
1,3-DICHLOROBENZENE	ND	5	3
1,3-DICHLOROPROPANE	ND	5	3
1,4-DICHLOROBENZENE	ND	5	3
2,2-DICHLOROPROPANE	ND	5	3
2-BUTANONE	ND	5	3
2-CHLOROTOLUENE	ND	5	3
2-HEXANONE	ND	5	3
4-CHLOROTOLUENE	ND	5	3
4-METHYL-2-PENTANONE	ND	5	3
ACETONE	ND	5	3
BENZENE	ND	5	3
BROMOBENZENE	ND	5	3
BROMOCHLOROMETHANE	ND	5	3
BROMODICHLOROMETHANE	ND	5	3
BROMOFORM	ND	5	3
BROMOMETHANE	ND	5	3
CARBON DISULFIDE	ND	5	3
CARBON TETRACHLORIDE	ND	5	3
CHLOROBENZENE	ND	5	3
CHLOROETHANE	ND	5	3
CHLOROFORM	ND	5	3
CHLOROMETHANE	ND	5	3
CIS-1,2-DICHLOROETHENE	ND	5	3
CIS-1,3-DICHLOROPROPENE	ND	5	3
DIBROMOCHLOROMETHANE	ND	5	3
DIBROMOMETHANE	ND	5	3
DICHLORODIFLUOROMETHANE	ND	5	3
ETHYLBENZENE	ND	5	3
HEXACHLOROBUTADIENE	ND	5	3
ISOPROPYL BENZENE	ND	5	3
M/P-XYLENES	ND	5	3
METHYLENE CHLORIDE	ND	5	3
N-BUTYLBENZENE	ND	5	3
N-PROPYLBENZENE	ND	5	3
NAPHTHALENE	ND	5	3
O-XYLENE	ND	5	3
P-ISOPROPYLTOLUENE	ND	5	3
SEC-BUTYLBENZENE	ND	5	3
STYRENE	ND	5	3
TERT-BUTYLBENZENE	ND	5	3
TETRACHLOROETHYLENE	ND	5	3
TOLUENE	ND	5	3
TRANS-1,2-DICHLOROETHENE	ND	5	3
TRANS-1,3-DICHLOROPROPENE	ND	5	3
TRICHLOROETHENE	ND	5	3
TRICHLOROFLUOROMETHANE	ND	5	3
VINYL CHLORIDE	ND	5	3
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
1,2-DICHLOROETHANE-D4	122	62-138	
TOLUENE-D8	101	75-125	
BROMOFLUOROBENZENE	102	75-125	

R.L. : Reporting limit  
 \* : Out of QC  
 E : Exceeded calibration range  
 B : Found in associated method blank  
 J : Value between R.L. and MDL  
 D : Value from dilution analysis  
 D.O. : Diluted out

SW 5030B/8260B  
VOLATILE ORGANICS BY GC/MS

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Client       : TETRA TECH EC, INC.      Date Collected: 10/06/05
Project      : MFA, SITE 1, CTO 86     Date Received: 10/07/05
Batch No.    : 05J053                  Date Extracted: 10/16/05 09:52
Sample ID    : 86-S1-128                Date Analyzed: 10/16/05 09:52
Lab Smp ID   : J053-10                  Dilution Factor: 1
Lab File ID  : RJ0488                   Matrix : WATER
Ext Btch ID  : V005J40                  % Moisture : NA
Calib. Ref.  : R10499                   Instrument ID : T-005
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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	.5	.2
1,1,1-TRICHLOROETHANE	ND	.5	.2
1,1,2,2-TETRACHLOROETHANE	ND	.5	.2
1,1,2-TRICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHENE	ND	.5	.2
1,1-DICHLOROPROPENE	ND	.5	.2
1,2,3-TRICHLOROBENZENE	ND	.5	.2
1,2,3-TRICHLOROPROPANE	ND	.5	.2
1,2,4-TRICHLOROBENZENE	ND	.5	.2
1,2,4-TRIMETHYLBENZENE	ND	.5	.2
1,2-DIBROMO-3-CHLOROPROPANE	ND	.2	.1
1,2-DICHLOROBENZENE	ND	.5	.2
1,2-DICHLOROETHANE	ND	.5	.2
1,2-DICHLOROPROPANE	ND	.5	.2
1,3,5-TRIMETHYLBENZENE	ND	.5	.2
1,3-DICHLOROBENZENE	ND	.5	.2
1,3-DICHLOROPROPANE	ND	.5	.2
1,4-DICHLOROBENZENE	ND	.5	.2
2,2-DICHLOROPROPANE	ND	.5	.2
2-BUTANONE	ND	10	.5
2-CHLOROTOLUENE	ND	.5	.2
2-HEXANONE	ND	10	.5
4-CHLOROTOLUENE	ND	.5	.2
4-METHYL-2-PENTANONE	ND	10	.5
ACETONE	ND	10	.5
BENZENE	ND	.5	.2
BROMOBENZENE	ND	.5	.2
BROMOCHLOROMETHANE	ND	.5	.2
BROMODICHLOROMETHANE	ND	.5	.2
BROMOFORM	ND	.1	.1
BROMOMETHANE	ND	.1	.1
CARBON DISULFIDE	ND	.5	.2
CARBON TETRACHLORIDE	ND	.5	.2
CHLOROBENZENE	ND	.5	.2
CHLOROETHANE	ND	.1	.1
CHLOROFORM	ND	.5	.2
CHLOROMETHANE	ND	.1	.1
CIS-1,2-DICHLOROETHENE	ND	.5	.2
CIS-1,3-DICHLOROPROPENE	ND	.5	.2
DIBROMOCHLOROMETHANE	ND	.5	.2
DIBROMOMETHANE	ND	.1	.1
DICHLORODIFLUOROMETHANE	ND	.5	.2
ETHYLBENZENE	ND	.5	.2
HEXACHLOROBUTADIENE	ND	.5	.2
ISOPROPYL BENZENE	ND	.5	.2
M/P-XYLENES	ND	.1	.1
METHYLENE CHLORIDE	ND	.2	.2
N-BUTYLBENZENE	ND	.5	.2
N-PROPYLBENZENE	ND	.5	.2
NAPHTHALENE	ND	.5	.2
O-XYLENE	ND	.5	.2
P-ISOPROPYLTOLUENE	ND	.5	.2
SEC-BUTYLBENZENE	ND	.5	.2
STYRENE	ND	.5	.2
TERT-BUTYLBENZENE	ND	.5	.2
TETRACHLOROETHYLENE	ND	.5	.2
TOLUENE	ND	.5	.2
TRANS-1,2-DICHLOROETHENE	ND	.5	.2
TRANS-1,3-DICHLOROPROPENE	ND	.5	.2
TRICHLOROETHENE	ND	.5	.2
TRICHLOROFLUOROMETHANE	ND	.1	.1
VINYL CHLORIDE	ND	.1	.1

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	125	62-139
TOLUENE-D8	100	75-125
BROMOFLUOROBENZENE	101	75-125

R.L. : Reporting limit  
 \* : Out of QC  
 E : Exceeded calibration range  
 B : Found in associated method blank  
 J : Value between R.L. and MDL  
 D : Value from dilution analysis  
 D.O. : Diluted out

SW 5030B/8260B  
VOLATILE ORGANICS BY GC/MS

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Client       : TETRA TECH EC, INC.      Date Collected: 10/06/05
Project      : MFA, SITE 1, CTO 86     Date Received: 10/07/05
Batch No.    : 05J053                  Date Extracted: 10/16/05 10:29
Sample ID    : 86-S1-129               Date Analyzed: 10/16/05 10:29
Lab Samp ID  : J053-11                 Dilution Factor: 1
Lab File ID  : RJO489                  Matrix          : WATER
Ext Btch ID  : V005J40                 % Moisture      : NA
Calib. Ref.  : R10499                  Instrument ID   : T-005
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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	.5	.2
1,1,1-TRICHLOROETHANE	ND	.5	.2
1,1,2,2-TETRACHLOROETHANE	ND	.5	.2
1,1,2-TRICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHENE	ND	.5	.2
1,1-DICHLOROPROPENE	ND	.5	.2
1,2,3-TRICHLOROBENZENE	ND	.5	.2
1,2,3-TRICHLOROPROPANE	ND	.5	.2
1,2,4-TRICHLOROBENZENE	ND	.5	.2
1,2,4-TRIMETHYLBENZENE	ND	.5	.2
1,2-DIBROMO-3-CHLOROPROPANE	ND	.5	.2
1,2-DICHLOROBENZENE	ND	.5	.2
1,2-DICHLOROETHANE	ND	.5	.2
1,2-DICHLOROPROPANE	ND	.5	.2
1,3,5-TRIMETHYLBENZENE	ND	.5	.2
1,3-DICHLOROBENZENE	ND	.5	.2
1,3-DICHLOROPROPANE	ND	.5	.2
1,4-DICHLOROBENZENE	ND	.5	.2
2,2-DICHLOROPROPANE	ND	.5	.2
2-BUTANONE	ND	10	.2
2-CHLOROTOLUENE	ND	.5	.2
2-HEXANONE	ND	10	.2
4-CHLOROTOLUENE	ND	.5	.2
4-METHYL-2-PENTANONE	ND	10	.2
ACETONE	ND	10	.2
BENZENE	ND	.5	.2
BROMOBENZENE	ND	.5	.2
BROMOCHLOROMETHANE	ND	.5	.2
BROMODICHLOROMETHANE	ND	.5	.2
BROMOFORM	ND	.5	.2
BROMOMETHANE	ND	.5	.2
CARBON DISULFIDE	ND	.5	.2
CARBON TETRACHLORIDE	ND	.5	.2
CHLOROBENZENE	ND	.5	.2
CHLOROETHANE	ND	.5	.2
CHLOROFORM	ND	.5	.2
CHLOROMETHANE	ND	.5	.2
CIS-1,2-DICHLOROETHENE	ND	.5	.2
CIS-1,3-DICHLOROPROPENE	ND	.5	.2
DIBROMOCHLOROMETHANE	ND	.5	.2
DIBROMOMETHANE	ND	.5	.2
DICHLORODIFLUOROMETHANE	ND	.5	.2
ETHYLBENZENE	ND	.5	.2
HEXACHLOROBUTADIENE	ND	.5	.2
ISOPROPYL BENZENE	ND	.5	.2
M/P-XYLENES	ND	.5	.2
METHYLENE CHLORIDE	ND	.5	.2
N-BUTYLBENZENE	ND	.5	.2
N-PROPYLBENZENE	ND	.5	.2
NAPHTHALENE	ND	.5	.2
O-XYLENE	ND	.5	.2
P-ISOPROPYLTOLUENE	ND	.5	.2
SEC-BUTYLBENZENE	ND	.5	.2
STYRENE	ND	.5	.2
TERT-BUTYLBENZENE	ND	.5	.2
TETRACHLOROETHYLENE	ND	.5	.2
TOLUENE	ND	.5	.2
TRANS-1,2-DICHLOROETHENE	ND	.5	.2
TRANS-1,3-DICHLOROPROPENE	ND	.5	.2
TRICHLOROETHENE	ND	.5	.2
TRICHLOROFLUOROMETHANE	ND	.5	.2
VINYL CHLORIDE	ND	.5	.2
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
1,2-DICHLOROETHANE-D4	128	62-139	
TOLUENE-D8	101	75-125	
BROMOFLUOROBENZENE	100	75-125	

R.L. : Reporting limit  
 \* : Out of QC  
 E : Exceeded calibration range  
 B : Found in associated method blank  
 J : Value between R.L. and MDL  
 D : Value from dilution analysis  
 D.O. : Diluted out

SW 5030B/82608  
 VOLATILE ORGANICS BY GC/MS

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=====
Client       : TETRA TECH EC, INC.      Date Collected: 10/06/05
Project      : MFA, SITE 1, CTO 86     Date Received: 10/07/05
Batch No.    : 05J053                  Date Extracted: 10/16/05 11:07
Sample ID    : 86-S1-130               Date Analyzed: 10/16/05 11:07
Lab Samp ID  : J053-12                 Dilution Factor: 1
Lab File ID  : RJ0490                  Matrix       : WATER
Ext Btch ID  : V005J40                 % Moisture   : NA
Calib. Ref.  : RI0499                  Instrument ID : T-005
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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	.5	.2
1,1,1-TRICHLOROETHANE	ND	.5	.2
1,1,2,2-TETRACHLOROETHANE	ND	.5	.2
1,1,2-TRICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHENE	ND	.5	.2
1,1-DICHLOROPROPENE	ND	.5	.2
1,2,3-TRICHLOROBENZENE	ND	.5	.2
1,2,3-TRICHLOROPROPANE	ND	.5	.2
1,2,4-TRICHLOROBENZENE	ND	.5	.2
1,2,4-TRIMETHYLBENZENE	ND	.5	.2
1,2-DIBROMO-3-CHLOROPROPANE	ND	.5	.2
1,2-DICHLOROBENZENE	ND	.5	.2
1,2-DICHLOROETHANE	ND	.5	.2
1,2-DICHLOROPROPANE	ND	.5	.2
1,3,5-TRIMETHYLBENZENE	ND	.5	.2
1,3-DICHLOROBENZENE	ND	.5	.2
1,3-DICHLOROPROPANE	ND	.5	.2
1,4-DICHLOROBENZENE	ND	.5	.2
2,2-DICHLOROPROPANE	ND	.5	.2
2-BUTANONE	ND	10	.5
2-CHLOROTOLUENE	ND	.5	.2
2-HEXANONE	ND	10	.5
4-CHLOROTOLUENE	ND	.5	.2
4-METHYL-2-PENTANONE	ND	10	.5
ACETONE	9.3J	10	.2
BENZENE	ND	.5	.2
BROMOBENZENE	ND	.5	.2
BROMOCHLOROMETHANE	ND	.5	.2
BROMODICHLOROMETHANE	ND	.5	.2
BROMOFORM	ND	.5	.2
BROMOMETHANE	ND	.5	.2
CARBON DISULFIDE	ND	.5	.2
CARBON TETRACHLORIDE	ND	.5	.2
CHLOROBENZENE	ND	.5	.2
CHLOROETHANE	ND	.5	.2
CHLOROFORM	ND	.5	.2
CHLOROMETHANE	ND	.5	.2
CIS-1,2-DICHLOROETHENE	ND	.5	.2
CIS-1,3-DICHLOROPROPENE	ND	.5	.2
DIBROMOCHLOROMETHANE	ND	.5	.2
DIBROMOMETHANE	ND	.5	.2
DICHLORODIFLUOROMETHANE	ND	.5	.2
ETHYLBENZENE	ND	.5	.2
HEXACHLOROBUTADIENE	ND	.5	.2
ISOPROPYL BENZENE	ND	.5	.2
M/P-XYLENES	ND	.5	.2
METHYLENE CHLORIDE	ND	.5	.2
N-BUTYLBENZENE	ND	.5	.2
N-PROPYLBENZENE	ND	.5	.2
NAPHTHALENE	ND	.5	.2
O-XYLENE	ND	.5	.2
P-ISOPROPYLTOLUENE	ND	.5	.2
SEC-BUTYLBENZENE	ND	.5	.2
STYRENE	ND	.5	.2
TERT-BUTYLBENZENE	ND	.5	.2
TETRACHLOROETHYLENE	ND	.5	.2
TOLUENE	ND	.5	.2
TRANS-1,2-DICHLOROETHENE	ND	.5	.2
TRANS-1,3-DICHLOROPROPENE	ND	.5	.2
TRICHLOROETHENE	ND	.5	.2
TRICHLOROFLUOROMETHANE	ND	.5	.2
VINYL CHLORIDE	ND	.5	.2
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
1,2-DICHLOROETHANE-D4	121	62-139	
TOLUENE-D8	101	75-125	
BROMOFLUOROBENZENE	99	75-125	

R.L. : Reporting limit  
 \* : Out of QC  
 E : Exceeded calibration range  
 B : Found in associated method blank  
 J : Value between R.L. and MDL  
 D : Value from dilution analysis  
 D.O. : Diluted out

**CASE NARRATIVE**

**CLIENT:** TETRA TECH EC, INC.

**PROJECT:** MFA, SITE 1, CTO 86

**SDG:** 05J053

**SW 3520C/8270C  
SEMI VOLATILE ORGANICS BY GC/MS**

Ten water samples were received on 10/07/05 for Semi Volatile Organic analysis by Method 3520C/8270C in accordance with USEPA SW846, 3<sup>rd</sup> ed.

**1. Holding Time**

Analytical holding time was met.

**2. Tuning and Calibration**

Tuning and calibration were carried out at 12-hour interval. All QC requirements were met.

**3. Method Blank**

Method blank was free of contamination at the reporting limit.

**4. Surrogate Recovery**

Recoveries were within QC limit.

**5. Lab Control Sample/Lab Control Sample Duplicate**

Recoveries were within QC limit.

**6. Matrix Spike/Matrix Spike Duplicate**

Sample J053-10 was spiked. All recoveries were within QC limit.

**7. Sample Analysis**

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

The last internal standard in sample J053-12 in both 1X and 2X analyses were out of QC, probably due to matrix interference. Both sets of results were reported.



SW 3520C/8270C  
SEMI VOLATILE ORGANICS BY GC/MS

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Client      : TETRA TECH EC, INC.      Date Collected: 10/06/05
Project     : MFA, SITE 1, CTO 86     Date Received: 10/07/05
Batch No.   : 05J053                 Date Extracted: 10/11/05 20:00
Sample ID   : 86-S1-131              Date Analyzed: 10/14/05 18:23
Lab Samp ID : J053-02                Dilution Factor: .94
Lab File ID : RJX085                 Matrix: WATER
Ext Btch ID : SVJ009W                % Moisture: NA
Calib. Ref.: R1X122                 Instrument ID: T-042
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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	19	9.4
2,4-DINITROTOLUENE	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	5.6
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	9.4	4.7
2-NITROANILINE	ND	19	5.6
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	9.4	4.7
4,6-DINITRO-2-METHYLPHENOL	ND	19	9.4
4-BROMOPHENYL-PHENYL ETHER	ND	19	6.6
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	9.4	4.7
4-NITROPHENOL	ND	19	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	9.4	4.7
BIS(2-ETHYLHEXYL)PHTHALATE	ND	19	9.4
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
D1-N-BUTYLPHTHALATE	ND	9.4	4.7
D1-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	9.4	4.7
DIBETHYLPHTHALATE	ND	19	5.6
DIMETHYLPHTHALATE	ND	19	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	9.4	4.7
HEXACHLOROBENZENE	ND	19	5.6
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-D1-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSODIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	19	9.4
PENTACHLOROPHENOL	ND	19	5.6
PHENANTHRENE	ND	9.4	4.7
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	2.3
ACETOPHENONE	ND	19	9.4
ATRAZINE	ND	9.4	4.7
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	60	25-134
2-FLUOROBIPHENYL	52	43-125
2-FLUOROPHENOL	44	25-125
NITROBENZENE-D5	52	32-125
PHENOL-D5	47	25-125
TERPHENYL-D14	79	42-126

RL: Reporting Limit  
(1): Cannot be separated from 3-Methylphenol  
(2): Cannot be separated from Diphenylamine

SW 3520C/8270C  
SEMI VOLATILE ORGANICS BY GC/MS

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=====
Client      : TETRA TECH EC, INC.      Date Collected: 10/06/05
Project     : MFA, SITE 1, CTO 86     Date Received: 10/07/05
Batch No.   : 05J053                 Date Extracted: 10/11/05 20:00
Sample ID   : 86-S1-132              Date Analyzed: 10/14/05 18:49
Lab Samp ID : J053-03                 Dilution Factor: 1
Lab File ID : RJX086                  Matrix      : WATER
Ext Btch ID : SVJ009W                 % Moisture   : NA
Calib. Ref. : R1X122                  Instrument ID : T-042
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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	10	5
2,4,6-TRICHLOROPHENOL	ND	10	5
2,4-DICHLOROPHENOL	ND	10	5
2,4-DIMETHYLPHENOL	ND	10	5
2,4-DINITROPHENOL	ND	20	10
2,4-DINITROTOLUENE	ND	20	10
2,6-DINITROTOLUENE	ND	20	6
2-CHLORONAPHTHALENE	ND	10	5
2-CHLOROPHENOL	ND	10	5
2-METHYLNAPHTHALENE	ND	10	5
2-METHYLPHENOL	ND	10	5
2-NITROANILINE	ND	20	6
2-NITROPHENOL	ND	10	5
3,3'-DICHLOROBENZIDINE	ND	10	5
3-NITROANILINE	ND	10	5
4,6-DINITRO-2-METHYLPHENOL	ND	20	10
4-BROMOPHENYL-PHENYL ETHER	ND	20	7
4-CHLORO-3-METHYLPHENOL	ND	10	5
4-CHLOROANILINE	ND	10	5
4-CHLOROPHENYL-PHENYL ETHER	ND	10	5
4-METHYLPHENOL (1)	ND	10	5
4-NITROANILINE	ND	10	5
4-NITROPHENOL	ND	10	5
ACENAPHTHENE	ND	10	5
ACENAPHTHYLENE	ND	10	5
ANTHRACENE	ND	10	5
BENZO(A)ANTHRACENE	ND	10	5
BENZO(A)PYRENE	ND	10	5
BENZO(B)FLUORANTHENE	ND	10	5
BENZO(K)FLUORANTHENE	ND	10	5
BENZO(G,H,I)PERYLENE	ND	10	5
BIS(2-CHLOROETHOXY)METHANE	ND	10	5
BIS(2-CHLOROETHYL)ETHER	ND	10	5
BIS(2-CHLOROISOPROPYL)ETHER	ND	10	5
BIS(2-ETHYLHEXYL)PHTHALATE	ND	20	10
BUTYLBENZYLPHTHALATE	ND	10	5
CHRYSENE	ND	10	5
DI-N-BUTYLPHTHALATE	ND	10	5
DI-N-OCTYLPHTHALATE	ND	10	5
DIBENZO(A,H)ANTHRACENE	ND	10	5
DIBENZOFURAN	ND	10	5
DIBETHYLPHTHALATE	ND	20	5
DIMETHYLPHTHALATE	ND	20	5
FLUORANTHENE	ND	10	5
FLUORENE	ND	10	5
HEXACHLOROBENZENE	ND	20	5
HEXACHLOROCYCLOPENTADIENE	ND	10	5
HEXACHLOROETHANE	ND	10	5
INDENO(1,2,3-CD)PYRENE	ND	10	5
ISOPHCHORONE	ND	10	5
N-NITROSO-DI-N-PROPYLAMINE	ND	10	5
N-NITROSODIPHENYLAMINE (2)	ND	10	5
NITROBENZENE	ND	10	5
PENTACHLOROPHENOL	ND	20	10
PHENANTHRENE	ND	20	5
PHENOL	ND	10	5
PYRENE	ND	10	5
1,1'-BIPHENYL	ND	10	2
ACETOPHENONE	ND	20	10
ATRAZINE	ND	10	5
BENZALDEHYDE	ND	10	5
CAPROLACTAM	ND	10	5
CARBAZOLE	ND	10	5
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
2,4,6-TRIBROMOPHENOL	70	25-134	
2-FLUOROBIPHENYL	61	43-125	
2-FLUOROPHENOL	46	25-125	
NITROBENZENE-D5	55	32-125	
PHENOL-D5	52	25-125	
TERPHENYL-D14	89	42-126	

RL: Reporting Limit  
(1): Cannot be separated from 3-Methylphenol  
(2): Cannot be separated from Diphenylamine

SW 3520C/8270C  
 SEMI VOLATILE ORGANICS BY GC/MS

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=====
Client      : TETRA TECH EC, INC.      Date Collected: 10/06/05
Project     : MFA, SITE 1, CTO 86     Date Received: 10/07/05
Batch No.   : 05J053                 Date Extracted: 10/11/05 20:00
Sample ID   : 86-S1-133              Date Analyzed: 10/14/05 19:14
Lab Samp ID : J053-04                Dilution Factor: .94
Lab File ID : RJX087                 Matrix      : WATER
Ext Btch ID : SVJ009W                % Moisture   : NA
Calib. Ref. : R1X122                 Instrument ID : T-042
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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	19	9.4
2,4-DINITROTOLUENE	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	5.6
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	9.4	4.7
2-NITROANILINE	ND	19	5.6
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	9.4	4.7
4,6-DINITRO-2-METHYLPHENOL	ND	19	9.4
4-BROMOPHENYL-PHENYL ETHER	ND	19	9.4
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	9.4	4.7
4-NITROPHENOL	ND	19	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,1)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	9.4	4.7
BIS(2-ETHYLHEXYL)PHTHALATE	ND	19	9.4
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHTHALATE	ND	9.4	4.7
DI-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	9.4	4.7
DIMETHYLPHTHALATE	ND	19	5.6
DIMETHYLPHTHALATE	ND	19	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	9.4	4.7
HEXACHLOROBENZENE	ND	19	5.6
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSODIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	19	9.4
PENTACHLOROPHENOL	ND	19	5.6
PHENANTHRENE	ND	9.4	4.7
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	2.3
ACETOPHENONE	ND	19	9.4
ATRAZINE	ND	9.4	4.7
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
2,4,6-TRIBROMOPHENOL	63	25-134	
2-FLUOROBIPHENYL	61	43-125	
2-FLUOROPHENOL	52	25-125	
NITROBENZENE-D5	60	32-125	
PHENOL-D5	55	25-125	
TERPHENYL-D14	91	42-126	

RL: Reporting Limit  
 (1): Cannot be separated from 3-Methylphenol  
 (2): Cannot be separated from Diphenylamine

SW 3520C/8270C  
SEMI VOLATILE ORGANICS BY GC/MS

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=====
Client      : TETRA TECH EC, INC.      Date Collected: 10/06/05
Project     : MFA, SITE 1, CTO 86     Date Received: 10/07/05
Batch No.   : 05J053                 Date Extracted: 10/11/05 20:00
Sample ID   : 86-S1-134              Date Analyzed: 10/14/05 19:39
Lab Samp ID : J053-05                Dilution Factor: .97
Lab File ID : RJX088                 Matrix          : WATER
Ext Btch ID : SVJ009W                % Moisture      : NA
Calib. Ref. : R1X122                 Instrument ID   : T-042
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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.7	4.9
2,4,6-TRICHLOROPHENOL	ND	9.7	4.9
2,4-DICHLOROPHENOL	ND	9.7	4.9
2,4-DIMETHYLPHENOL	ND	19	9.7
2,4-DINITROPHENOL	ND	19	9.7
2,4-DINITROTOLUENE	ND	19	5.8
2,6-DINITROTOLUENE	ND	9.7	4.9
2-CHLORONAPHTHALENE	ND	9.7	4.9
2-CHLOROPHENOL	ND	9.7	4.9
2-METHYLNAPHTHALENE	ND	9.7	4.9
2-METHYLPHENOL	ND	19	5.8
2-NITROANILINE	ND	9.7	4.9
2-NITROPHENOL	ND	9.7	4.9
3,3'-DICHLOROBENZIDINE	ND	9.7	4.9
3-NITROANILINE	ND	19	9.7
4,6-DINITRO-2-METHYLPHENOL	ND	19	6.8
4-BROMOPHENYL-PHENYL ETHER	ND	9.7	4.9
4-CHLORO-3-METHYLPHENOL	ND	9.7	4.9
4-CHLOROANILINE	ND	9.7	4.9
4-CHLOROPHENYL-PHENYL ETHER	ND	9.7	4.9
4-METHYLPHENOL (1)	ND	9.7	4.9
4-NITROANILINE	ND	19	4.9
4-NITROPHENOL	ND	9.7	4.9
ACENAPHTHENE	ND	9.7	4.9
ACENAPHTHYLENE	ND	9.7	4.9
ANTHRACENE	ND	9.7	4.9
BENZO(A)ANTHRACENE	ND	9.7	4.9
BENZO(A)PYRENE	ND	9.7	4.9
BENZO(B)FLUORANTHENE	ND	9.7	4.9
BENZO(K)FLUORANTHENE	ND	9.7	4.9
BENZO(G,H,I)PERYLENE	ND	9.7	4.9
BIS(2-CHLOROETHOXY)METHANE	ND	9.7	4.9
BIS(2-CHLOROETHYL)ETHER	ND	9.7	4.9
BIS(2-CHLOROISOPROPYL)ETHER	ND	19	9.7
BIS(2-ETHYLNEXYL)PHthalate	ND	9.7	4.9
BUTYLBENZYLPHthalate	ND	9.7	4.9
CHRYSENE	ND	9.7	4.9
D1-N-BUTYLPHthalate	ND	9.7	4.9
D1-N-OCTYLPHthalate	ND	9.7	4.9
DIBENZO(A,H)ANTHRACENE	ND	9.7	4.9
DIBENZOFURAN	ND	19	5.8
DIETHYLPHthalate	ND	19	4.9
DMETHYLPHthalate	ND	9.7	4.9
FLUORANTHENE	ND	9.7	4.9
FLUORENE	ND	19	5.8
HEXACHLOROBENZENE	ND	9.7	4.9
HEXACHLOROCYCLOPENTADIENE	ND	9.7	4.9
HEXACHLOROETHANE	ND	9.7	4.9
INDENO(1,2,3-CD)PYRENE	ND	9.7	4.9
ISOPHORONE	ND	9.7	4.9
N-NITROSO-D1-N-PROPYLAMINE	ND	9.7	4.9
N-NITROSDIPHENYLAMINE (2)	ND	9.7	4.9
NITROBENZENE	ND	19	9.7
PENTACHLOROPHENOL	ND	19	5.8
PHENANTHRENE	ND	9.7	4.9
PHENOL	ND	9.7	4.9
PYRENE	ND	9.7	4.9
1,1'-BIPHENYL	ND	9.7	2.4
ACETOPHENONE	ND	19	9.7
ATRAZINE	ND	9.7	4.9
BENZALDEHYDE	ND	9.7	4.9
CAPROLACTAM	ND	9.7	4.9
CARBAZOLE	ND	9.7	4.9

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	61	25-134
2-FLUOROBIPHENYL	59	43-125
2-FLUOROPHENOL	53	25-125
NITROBENZENE-D5	60	32-125
PHENOL-D5	54	25-125
TERPHENYL-D14	86	42-126

RL: Reporting Limit  
(1): Cannot be separated from 3-Methylphenol  
(2): Cannot be separated from Diphenylamine

SW 3520C/8270C  
SEMI VOLATILE ORGANICS BY GC/MS

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=====
Client      : TETRA TECH EC, INC.      Date Collected: 10/06/05
Project     : MFA, SITE 1, CTO 86     Date Received: 10/07/05
Batch No.   : 05J053                 Date Extracted: 10/11/05 20:00
Sample ID   : 86-S1-135              Date Analyzed: 10/14/05 20:05
Lab. Samp ID: J053-06                Dilution Factor: .94
Lab File ID : RJX089                 Matrix      : WATER
Ext Btch ID : SVJ009W                % Moisture  : NA
Calib. Ref. : R1X122                 Instrument ID : T-042
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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	19	9.4
2,4-DINITROPHENOL	ND	19	9.4
2,4-DINITROTOLUENE	ND	19	5.6
2,6-DINITROTOLUENE	ND	9.4	4.7
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	19	5.6
2-NITROANILINE	ND	9.4	4.7
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	19	9.4
4,6-DINITRO-2-METHYLPHENOL	ND	19	6.6
4-BROMOPHENYL-PHENYL ETHER	ND	9.4	4.7
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	19	4.7
4-NITROPHENOL	ND	9.4	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	9.4	4.7
BIS(2-ETHYLHEXYL)PHthalate	ND	19	9.4
BUTYLBENZYLPHthalate	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
D1-N-BUTYLPHthalate	ND	9.4	4.7
D1-N-OCTYLPHthalate	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	9.4	4.7
DIETHYLPHthalate	ND	19	5.6
DIMETHYLPHthalate	ND	19	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	9.4	4.7
HEXACHLOROBENZENE	ND	19	5.6
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-D1-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSO-DIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	9.4	4.7
PENTACHLOROPHENOL	ND	19	9.4
PHENANTHRENE	ND	19	5.6
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	2.3
ACETOPHENONE	ND	19	9.4
ATRAZINE	ND	9.4	4.7
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
2,4,6-TRIBROMOPHENOL	62	25-134	
2-FLUOROBIPHENYL	64	43-125	
2-FLUOROPHENOL	55	25-125	
NITROBENZENE-D5	63	32-125	
PHENOL-D5	55	25-125	
TERPHENYL-D14	81	42-126	

RL: Reporting Limit  
(1): Cannot be separated from 3-Methylphenol  
(2): Cannot be separated from Diphenylamine

SW 3520C/8270C  
SEMI VOLATILE ORGANICS BY GC/MS

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Client      : TETRA TECH EC, INC.      Date Collected: 10/06/05
Project     : MFA, SITE 1, CTO 86     Date Received: 10/07/05
Batch No.   : 05J053                 Date Extracted: 10/11/05 20:00
Sample ID   : 86-S1-136              Date Analyzed: 10/14/05 20:30
Lab Samp ID : J053-07                Dilution Factor: .95
Lab File ID : RJX090                 Matrix: WATER
Ext Btch ID : SVJ009W                % Moisture: NA
Calib. Ref. : RIX122                 Instrument ID : T-042
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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.5	4.8
2,4,6-TRICHLOROPHENOL	ND	9.5	4.8
2,4-DICHLOROPHENOL	ND	9.5	4.8
2,4-DIMETHYLPHENOL	ND	9.5	4.8
2,4-DINITROPHENOL	ND	19	9.5
2,4-DINITROTOLUENE	ND	19	9.5
2,6-DINITROTOLUENE	ND	19	5.7
2-CHLORONAPHTHALENE	ND	9.5	4.8
2-CHLOROPHENOL	ND	9.5	4.8
2-METHYLNAPHTHALENE	ND	9.5	4.8
2-METHYLPHENOL	ND	19	5.7
2-NITROANILINE	ND	9.5	4.8
2-NITROPHENOL	ND	9.5	4.8
3,3'-DICHLOROBENZIDINE	ND	9.5	4.8
3-NITROANILINE	ND	19	9.5
4,6-DINITRO-2-METHYLPHENOL	ND	19	6.6
4-BROMOPHENYL-PHENYL ETHER	ND	9.5	4.8
4-CHLORO-3-METHYLPHENOL	ND	9.5	4.8
4-CHLOROANILINE	ND	9.5	4.8
4-CHLOROPHENYL-PHENYL ETHER	ND	9.5	4.8
4-METHYLPHENOL (1)	ND	9.5	4.8
4-NITROANILINE	ND	19	4.8
4-NITROPHENOL	ND	9.5	4.8
ACENAPHTHENE	ND	9.5	4.8
ACENAPHTHYLENE	ND	9.5	4.8
ANTHRACENE	ND	9.5	4.8
BENZO(A)ANTHRACENE	ND	9.5	4.8
BENZO(A)PYRENE	ND	9.5	4.8
BENZO(B)FLUORANTHENE	ND	9.5	4.8
BENZO(K)FLUORANTHENE	ND	9.5	4.8
BENZO(G,H,I)PERYLENE	ND	9.5	4.8
BIS(2-CHLOROETHOXY)METHANE	ND	9.5	4.8
BIS(2-CHLOROETHYL)ETHER	ND	9.5	4.6
BIS(2-CHLOROISOPROPYL)ETHER	ND	19	9.5
BIS(2-ETHYLHEXYL)PHTHALATE	ND	9.5	4.8
BUTYLBENZYLPHTHALATE	ND	9.5	4.8
CHRYSENE	ND	9.5	4.8
D1-N-BUTYLPHTHALATE	ND	9.5	4.8
D1-N-OCTYLPHTHALATE	ND	9.5	4.8
DIBENZO(A,H)ANTHRACENE	ND	9.5	4.8
DIBENZOFURAN	ND	19	5.7
DIMETHYLPHTHALATE	ND	19	4.8
DIMETHYLPHTHALATE	ND	9.5	4.8
FLUORANTHENE	ND	9.5	4.8
FLUCRENE	ND	19	5.7
HEXACHLOROBENZENE	ND	9.5	4.8
HEXACHLOROCYCLOPENTADIENE	ND	9.5	4.8
HEXACHLOROETHANE	ND	9.5	4.8
INDENO(1,2,3-CD)PYRENE	ND	9.5	4.8
ISOPHORONE	ND	9.5	4.8
N-NITROSO-D1-N-PROPYLAMINE	ND	9.5	4.8
N-NITROSODIPHENYLAMINE (2)	ND	9.5	4.8
NITROBENZENE	ND	19	9.5
PENTACHLOROPHENOL	ND	19	5.7
PHENANTHRENE	ND	9.5	4.8
PHENOL	ND	9.5	4.8
PYRENE	ND	9.5	4.8
1,1'-BIPHENYL	ND	9.5	2.4
ACETOPHENONE	ND	19	9.5
ATRAZINE	ND	9.5	4.8
BENZALDEHYDE	ND	9.5	4.8
CAPROLACTAM	ND	9.5	4.8
CARBAZOLE	ND	9.5	4.8

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	70	25-134
2-FLUOROBIPHENYL	65	43-125
2-FLUOROPHENOL	52	25-125
NITROBENZENE-D5	57	32-125
PHENOL-D5	58	25-125
TERPHENYL-D14	87	42-126

RL: Reporting Limit  
(1): Cannot be separated from 3-Methylphenol  
(2): Cannot be separated from Diphenylamine

SW 3520C/8270C  
SEMI VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH EC, INC. Date Collected: 10/06/05  
Project : MFA, SITE 1, CTO 86 Date Received: 10/07/05  
Batch No. : 05J053 Date Extracted: 10/11/05 20:00  
Sample ID: 86-S1-126 Date Analyzed: 10/14/05 20:56  
Lab. Samp ID: J053-09 Dilution Factor: 1  
Lab File ID: RJX091 Matrix : WATER  
Ext Btch ID: SVJ009W % Moisture : NA  
Calib. Ref.: RIX122 Instrument ID : T-042

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	10	5
2,4,6-TRICHLOROPHENOL	ND	10	5
2,4-DICHLOROPHENOL	ND	10	5
2,4-DIMETHYLPHENOL	ND	10	5
2,4-DINITROPHENOL	ND	20	10
2,4-DINITROTOLUENE	ND	20	10
2,6-DINITROTOLUENE	ND	20	5
2-CHLORONAPHTHALENE	ND	10	5
2-CHLOROPHENOL	ND	10	5
2-METHYLNAPHTHALENE	ND	10	5
2-METHYLPHENOL	ND	10	5
2-NITROANILINE	ND	20	5
2-NITROPHENOL	ND	10	5
3,3'-DICHLOROBENZIDINE	ND	10	5
3-NITROANILINE	ND	10	10
4,6-DINITRO-2-METHYLPHENOL	ND	20	5
4-BROMOPHENYL-PHENYL ETHER	ND	20	5
4-CHLORO-3-METHYLPHENOL	ND	10	5
4-CHLOROANILINE	ND	10	5
4-CHLOROPHENYL-PHENYL ETHER	ND	10	5
4-METHYLPHENOL (1)	ND	10	5
4-NITROANILINE	ND	10	5
4-NITROPHENOL	ND	20	5
ACENAPHTHENE	ND	10	5
ACENAPHTHYLENE	ND	10	5
ANTHRACENE	ND	10	5
BENZO(A)ANTHRACENE	ND	10	5
BENZO(A)PYRENE	ND	10	5
BENZO(B)FLUORANTHENE	ND	10	5
BENZO(K)FLUORANTHENE	ND	10	5
BENZO(G,H,I)PERYLENE	ND	10	5
BIS(2-CHLOROETHOXY)METHANE	ND	10	5
BIS(2-CHLOROETHYL)ETHER	ND	10	5
BIS(2-CHLOROISOPROPYL)ETHER	ND	10	5
BIS(2-ETHYLHEXYL)PHTHALATE	ND	20	10
BUTYLBENZYLPHTHALATE	ND	10	5
CHRYSENE	ND	10	5
D1-N-BUTYLPHTHALATE	ND	10	5
D1-N-OCTYLPHTHALATE	ND	10	5
DIBENZO(A,H)ANTHRACENE	ND	10	5
DIBENZO(FURAN	ND	10	5
D1ETHYLPHTHALATE	ND	20	5
DIMETHYLPHTHALATE	ND	20	5
FLUORANTHENE	ND	10	5
FLUORENE	ND	10	5
HEXACHLOROBENZENE	ND	20	5
HEXACHLOROCYCLOPENTADIENE	ND	10	5
HEXACHLOROETHANE	ND	10	5
INDENO(1,2,3-CD)PYRENE	ND	10	5
ISOPHORONE	ND	10	5
N-NITROSO-D1-N-PROPYLAMINE	ND	10	5
N-NITROSODIPHENYLAMINE (2)	ND	10	5
NITROBENZENE	ND	20	10
PENTACHLOROPHENOL	ND	20	5
PHENANTHRENE	ND	10	5
PHENOL	ND	10	5
PYRENE	ND	10	5
1,1'-BIPHENYL	ND	10	2.5
ACETOPHENONE	ND	10	10
ATRAZINE	ND	10	5
BENZALDEHYDE	ND	10	5
CAROLACTAM	ND	10	5
CARBAZOLE	ND	10	5

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	66	25-134
2-FLUOROBIPHENYL	62	43-125
2-FLUOROPHENOL	50	25-125
NITROBENZENE-D5	58	32-125
PHENOL-D5	53	25-125
TERPHENYL-D14	87	42-126

RL: Reporting Limit  
(1): Cannot be separated from 3-Methylphenol  
(2): Cannot be separated from Diphenylamine

SW 3520C/8270C  
 SEMI VOLATILE ORGANICS BY GC/MS

Client : YETRA TECH EC, INC.	Date Collected: 10/06/05
Project : MFA, SITE 1, CTO 86	Date Received: 10/07/05
Batch No. : 05J053	Date Extracted: 10/11/05 20:00
Sample ID: 86-S1-128	Date Analyzed: 10/14/05 17:07
Lab Samp ID: J053-10	Dilution Factor: .95
Lab File ID: RJX082	Matrix : WATER
Ext Btch ID: SVJ009W	% Moisture : NA
Calib. Ref.: R1X122	Instrument ID : T-042

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.5	4.8
2,4,6-TRICHLOROPHENOL	ND	9.5	4.8
2,4-DICHLOROPHENOL	ND	9.5	4.8
2,4-DIMETHYLPHENOL	ND	9.5	4.8
2,4-DINITROPHENOL	ND	19	9.5
2,4-DINITROTOLUENE	ND	19	9.5
2,6-DINITROTOLUENE	ND	19	5.7
2-CHLORONAPHTHALENE	ND	9.5	4.8
2-CHLOROPHENOL	ND	9.5	4.8
2-METHYLNAPHTHALENE	ND	9.5	4.8
2-METHYLPHENOL	ND	19	5.7
2-NITROANILINE	ND	9.5	4.8
2-NITROPHENOL	ND	9.5	4.8
3,3'-DICHLOROBENZIDINE	ND	9.5	4.8
3-NITROANILINE	ND	19	9.5
4,6-DINITRO-2-METHYLPHENOL	ND	19	6.6
4-BROMOPHENYL-PHENYL ETHER	ND	9.5	4.8
4-CHLORO-3-METHYLPHENOL	ND	9.5	4.8
4-CHLOROANILINE	ND	9.5	4.8
4-CHLOROPHENYL-PHENYL ETHER	ND	9.5	4.8
4-METHYLPHENOL (1)	ND	9.5	4.8
4-NITROANILINE	ND	19	4.8
4-NITROPHENOL	ND	19	4.8
ACENAPHTHENE	ND	9.5	4.8
ACENAPHTHYLENE	ND	9.5	4.8
ANTHRACENE	ND	9.5	4.8
BENZO(A)ANTHRACENE	ND	9.5	4.8
BENZO(A)PYRENE	ND	9.5	4.8
BENZO(B)FLUORANTHENE	ND	9.5	4.8
BENZO(K)FLUORANTHENE	ND	9.5	4.8
BENZO(G,H,I)PERYLENE	ND	9.5	4.8
BIS(2-CHLOROETHOXY)METHANE	ND	9.5	4.8
BIS(2-CHLOROETHYL)ETHER	ND	9.5	4.8
BIS(2-CHLOROISOPROPYL)ETHER	ND	9.5	4.8
BIS(2-ETHYLHEXYL)PHTHALATE	ND	19	9.5
BUTYLBENZYLPHTHALATE	ND	9.5	4.8
CHRYSENE	ND	9.5	4.8
D1-N-BUTYLPHTHALATE	ND	9.5	4.8
D1-N-OCTYLPHTHALATE	ND	9.5	4.8
DIBENZO(A,H)ANTHRACENE	ND	9.5	4.8
DIBENZOFURAN	ND	9.5	4.8
DIBENZOPHTHALATE	ND	19	5.7
DIEETHYLPHTHALATE	ND	19	4.8
DIMETHYLPHTHALATE	ND	9.5	4.8
FLUORANTHENE	ND	9.5	4.8
FLUORENE	ND	19	5.7
HEXACHLOROBENZENE	ND	9.5	4.8
HEXACHLOROCHLOROPENTADIENE	ND	9.5	4.8
HEXACHLOROETHANE	ND	9.5	4.8
INDENO(1,2,3-CD)PYRENE	ND	9.5	4.8
ISOPHORONE	ND	9.5	4.8
N-NITROSO-D1-N-PROPYLAMINE	ND	9.5	4.8
N-NITROSODIPHENYLAMINE (2)	ND	9.5	4.8
NITROBENZENE	ND	19	9.5
PENTACHLOROPHENOL	ND	19	5.7
PHENANTHRENE	ND	9.5	4.8
PHENOL	ND	9.5	4.8
PYRENE	ND	9.5	4.8
1,1'-BIPHENYL	ND	9.5	2.4
ACETOPHENONE	ND	19	9.5
ATRAZINE	ND	9.5	4.8
BENZALDEHYDE	ND	9.5	4.8
CAPROLACTAM	ND	9.5	4.8
CARBAZOLE	ND	9.5	4.8

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	65	25-134
2-FLUOROBIPHENYL	65	43-125
2-FLUOROPHENOL	58	25-125
NITROBENZENE-D5	66	32-125
PHENOL-D5	59	25-125
TERPHENYL-D14	83	42-126

RL: Reporting Limit  
 (1): Cannot be separated from 3-Methylphenol  
 (2): Cannot be separated from Diphenylamine

3017



SW 3520C/8270C  
SEMI VOLATILE ORGANICS BY GC/MS

```

=====
Client       : TETRA TECH EC, INC.      Date Collected: 10/06/05
Project      : MFA, SITE 1, CTO 86     Date Received: 10/07/05
Batch No.    : 05J053                  Date Extracted: 10/11/05 20:00
Sample ID    : 86-S1-129               Date Analyzed: 10/14/05 21:21
Lab Samp ID  : J053-11                 Dilution Factor: .94
Lab File ID  : RJX092                  Matrix       : WATER
Ext Btch ID  : SVJ009W                 % Moisture   : NA
Calib. Ref.  : R1X122                  Instrument ID : T-042
=====

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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	19	9.4
2,4-DINITROTOLUENE	ND	19	9.4
2,6-DINITROTOLUENE	ND	19	5.6
2-CHLORONAPHTHALENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	19	5.6
2-NITROANILINE	ND	9.4	4.7
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLOROBENZIDINE	ND	9.4	4.7
3-NITROANILINE	ND	19	9.4
4,6-DINITRO-2-METHYLPHENOL	ND	19	6.6
4-BROMOPHENYL-PHENYL ETHER	ND	9.4	4.7
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	19	4.7
4-NITROPHENOL	ND	9.4	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	19	9.4
BIS(2-ETHYLHEXYL)PHTHALATE	ND	9.4	4.7
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHTHALATE	ND	9.4	4.7
DI-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	19	5.6
DIETHYLPHTHALATE	ND	9.4	4.7
DIMETHYLPHTHALATE	ND	9.4	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	19	5.6
HEXACHLOROBENZENE	ND	9.4	4.7
HEXACHLOROCYCLOPENTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSODIPHENYLAMINE (2)	ND	9.4	4.7
NITROBENZENE	ND	19	9.4
PENTACHLOROPHENOL	ND	19	5.6
PHENANTHRENE	ND	9.4	4.7
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
1,1'-BIPHENYL	ND	9.4	2.3
ACETOPHENONE	ND	19	9.4
ATRAZINE	ND	9.4	4.7
BENZALDEHYDE	ND	9.4	4.7
CAPROLACTAM	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	68	25-134
2-FLUOROBIPHENYL	68	43-125
2-FLUOROPHENOL	55	25-125
NITROBENZENE-D5	64	32-125
PHENOL-D5	58	25-125
TERPHENYL-D14	87	42-126

RL: Reporting Limit  
(1): Cannot be separated from 3-Methylphenol  
(2): Cannot be separated from Diphenylamine

SW 3520G/8270C  
SEMI VOLATILE ORGANICS BY GC/MS

Client : TETRA TECH EC, INC. Date Collected: 10/06/05  
Project : MFA SITE 1, CTO 86 Date Received: 10/07/05  
Batch No. : 05J053 Date Extracted: 10/11/05 20:00  
Sample ID: 86-S1-130 Date Analyzed: 10/14/05 21:46  
Lab Samp ID: J053-12 Dilution Factor: 1.01  
Lab File ID: RJX093 Matrix : WATER  
Ext Btch ID: SVJ009W % Moisture : NA  
Calib. Ref.: RIX122 Instrument ID : T-042

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	10	5
2,4,6-TRICHLOROPHENOL	ND	10	5
2,4-DICHLOROPHENOL	ND	10	5
2,4-DIMETHYLPHENOL	ND	10	5
2,4-DINITROPHENOL	ND	20	10
2,4-DINITROTOLUENE	ND	20	10
2,6-DINITROTOLUENE	ND	20	6.1
2-CHLORONAPHTHALENE	ND	10	5
2-CHLOROPHENOL	ND	10	5
2-METHYLNAPHTHALENE	ND	10	5
2-METHYLPHENOL	ND	10	5
2-NITROANILINE	ND	20	6.1
2-NITROPHENOL	ND	10	5
3,3'-DICHLOROBENZIDINE	ND	10	5
3-NITROANILINE	ND	10	5
4,6-DINITRO-2-METHYLPHENOL	ND	20	10
4-BROMOPHENYL-PHENYL ETHER	ND	20	7.1
4-CHLORO-3-METHYLPHENOL	ND	10	5
4-CHLOROANILINE	ND	10	5
4-CHLOROPHENYL-PHENYL ETHER	ND	10	5
4-METHYLPHENOL (1)	ND	10	5
4-NITROANILINE	ND	10	5
4-NITROPHENOL	ND	20	5
ACENAPHTHENE	ND	10	5
ACENAPHTHYLENE	ND	10	5
ANTHRACENE	ND	10	5
BENZO(A)ANTHRACENE	ND	10	5
BENZO(A)PYRENE	ND	10	5
BENZO(B)FLUORANTHENE	ND	10	5
BENZO(K)FLUORANTHENE	ND	10	5
BENZO(G,H,I)PERYLENE	ND	10	5
BIS(2-CHLOROETHOXY)METHANE	ND	10	5
BIS(2-CHLOROETHYL)ETHER	ND	10	5
BIS(2-CHLOROISOPROPYL)ETHER	ND	10	5
BIS(2-ETHYLHEXYL)PHTHALATE	ND	20	10
BUTYLBENZYLPHTHALATE	ND	10	5
CHRYSENE	ND	10	5
DI-N-BUTYLPHTHALATE	ND	10	5
DI-N-OCTYLPHTHALATE	ND	10	5
DIBENZO(A,H)ANTHRACENE	ND	10	5
DIBENZOFURAN	ND	10	5
DIETHYLPHTHALATE	ND	20	6.1
DIMETHYLPHTHALATE	ND	10	5
FLUORANTHENE	ND	10	5
FLUORENE	ND	10	5
HEXACHLOROBENZENE	ND	20	6.1
HEXACHLOROCYCLOPENTADIENE	ND	10	5
HEXACHLOROETHANE	ND	10	5
INDENO(1,2,3-CD)PYRENE	ND	10	5
ISOPHORONE	ND	10	5
N-NITROSO-DI-N-PROPYLAMINE	ND	10	5
N-NITROSODIPHENYLAMINE (2)	ND	10	5
NITROBENZENE	ND	20	5
PENTACHLOROPHENOL	ND	20	6.1
PHENANTHRENE	ND	10	5
PHENOL	ND	10	5
PYRENE	ND	10	5
1,1'-BIPHENYL	ND	10	2.5
ACETOPHENONE	ND	20	10
ATRAZINE	ND	10	5
BENZALDEHYDE	ND	10	5
CAPROLACTAM	ND	10	5
CARBAZOLE	ND	10	5

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	73	25-134
2-FLUOROBIPHENYL	75	43-125
2-FLUOROPHENOL	67	25-125
NITROBENZENE-D5	79	32-125
PHENOL-D5	71	25-125
TERPHENYL-D14	106	42-126

RL: Reporting Limit  
(1): Cannot be separated from 3-Methylphenol  
(2): Cannot be separated from Diphenylamine

SW 3520C/8270C  
SEMI VOLATILE ORGANICS BY GC/MS

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=====
Client      : TETRA TECH EC, INC.      Date Collected: 10/06/05
Project     : MFA, SITE 1, CTO 86      Date Received: 10/07/05
Batch No.   : 05J053                  Date Extracted: 10/11/05 20:00
Sample ID   : 86-S1-130RE              Date Analyzed: 10/17/05 13:08
Lab Samp ID : J053-12W                 Dilution Factor: 2.02
Lab File ID : RJX097                   Matrix          : WATER
Ext Btch ID : SVJ009W                  % Moisture      : NA
Calib. Ref. : R1X122                   Instrument ID   : T-042
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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	20	10
2,4,6-TRICHLOROPHENOL	ND	20	10
2,4-DICHLOROPHENOL	ND	20	10
2,4-DIMETHYLPHENOL	ND	20	10
2,4-DINITROPHENOL	ND	40	20
2,4-DINITROTOLUENE	ND	40	20
2,6-DINITROTOLUENE	ND	40	12
2-CHLORONAPHTHALENE	ND	20	10
2-CHLOROPHENOL	ND	20	10
2-METHYLNAPHTHALENE	ND	20	10
2-METHYLPHENOL	ND	20	10
2-NITROANILINE	ND	40	12
2-NITROPHENOL	ND	20	10
3,3'-DICHLOROBENZIDINE	ND	20	10
3-NITROANILINE	ND	20	10
4,6-DINITRO-2-METHYLPHENOL	ND	40	20
4-BROMOPHENYL-PHENYL ETHER	ND	40	14
4-CHLORO-3-METHYLPHENOL	ND	20	10
4-CHLOROANILINE	ND	20	10
4-CHLOROPHENYL-PHENYL ETHER	ND	20	10
4-METHYLPHENOL (1)	ND	20	10
4-NITROANILINE	ND	20	10
4-NITROPHENOL	ND	40	10
ACENAPHTHENE	ND	20	10
ACENAPHTHYLENE	ND	20	10
ANTHRACENE	ND	20	10
BENZO(A)ANTHRACENE	ND	20	10
BENZO(A)PYRENE	ND	20	10
BENZO(B)FLUORANTHENE	ND	20	10
BENZO(K)FLUORANTHENE	ND	20	10
BENZO(G,H,I)PERYLENE	ND	20	10
BIS(2-CHLOROETHOXY)METHANE	ND	20	10
BIS(2-CHLOROETHYL)ETHER	ND	20	10
BIS(2-CHLOROISOPROPYL)ETHER	ND	20	10
BIS(2-ETHYLHEXYL)PHTHALATE	ND	40	20
BUTYLBENZYLPHTHALATE	ND	20	10
CHRYSENE	ND	20	10
DI-N-BUTYLPHTHALATE	ND	20	10
DI-N-OCTYLPHTHALATE	ND	20	10
DIBENZO(A,H)ANTHRACENE	ND	20	10
DIBENZOFURAN	ND	20	10
DIDETHYLPHTHALATE	ND	40	12
DIMETHYLPHTHALATE	ND	40	10
FLUORANTHENE	ND	20	10
FLUORENE	ND	20	10
HEXACHLOROBENZENE	ND	40	12
HEXACHLOROCYCLOPENTADIENE	ND	20	10
HEXACHLOROETHANE	ND	20	10
INDENO(1,2,3-CD)PYRENE	ND	20	10
ISOPHORONE	ND	20	10
N-NITROSO-DI-N-PROPYLAMINE	ND	20	10
N-NITROSDIPHENYLAMINE (2)	ND	20	10
NITROBENZENE	ND	20	10
PENTACHLOROPHENOL	ND	40	20
PHENANTHRENE	ND	40	12
PHENOL	ND	20	10
PYRENE	ND	20	10
1,1'-BIPHENYL	ND	20	10
ACETOPHENONE	ND	20	5
ATRAZINE	ND	40	20
BENZALDEHYDE	ND	20	10
CAPROLACTAM	ND	20	10
CARBAZOLE	ND	20	10

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	43	25-134
2-FLUOROBIPHENYL	44	43-125
2-FLUOROPHENOL	37	25-125
NITROBENZENE-D5	40	32-125
PHENOL-D5	39	25-125
TERPHENYL-D14	55	42-126

RL: Reporting Limit  
 (1): Cannot be separated from 3-Methylphenol  
 (2): Cannot be separated from Diphenylamine

**CASE NARRATIVE**

**CLIENT:** TETRA TECH EC, INC.  
**PROJECT:** MFA, SITE 1, CTO 86  
**SDG:** 05J053

**SW3520C/8081A  
PESTICIDES**

Ten (10) water samples were received on 10/07/05 for Pesticides analysis by Method 3520C/8081A in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3<sup>rd</sup> ed.

**1. Holding Time**

Analytical holding time was met.

**2. Instrument Performance and Calibration**

Initial calibration was at five points for Pesticides, all RSDs were within 20%. All continue calibrations were analyzed at 12 hour interval and mean recoveries were within 85-115%.

Endrin and DDT breakdown were within QC limit.

**3. Method Blank**

Method blank was free of contamination at the reporting limit.

**4. Surrogate Recovery**

Recoveries were within QC limit.

**5. Lab Control Sample/Lab Control Sample Duplicate**

All recoveries were within QC limit.

**6. Matrix Spike/Matrix Spike Duplicate**

Sample J053-10 was spiked. All recoveries were within QC limit.

**7. Sample Analysis**

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

When sample results are confirmed by a second column, the relative percentage difference (RPD) between the two results is calculated. If RPD is less than 40%, and no evidence of chromatographic problems, the higher result is reported. If RPD is greater than 40%, the chromatogram is checked for anomalies and results are selected based on the best professional judgement. If no evidence of any chromatographic problems, the higher result is reported.

SW3520C/8081A  
PESTICIDES

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=====
Client      : TETRA TECH EC, INC.      Date Collected: 10/06/05
Project     : MFA, SITE 1, CTD 86     Date Received: 10/07/05
Batch No.   : 05J053                 Date Extracted: 10/11/05 14:00
Sample ID: 86-S1-131                 Date Analyzed: 10/13/05 22:11
Lab Samp ID: J053-02                 Dilution Factor: .99
Lab File ID: SJ13028A                Matrix       : WATER
Ext Btch ID: CPU007W                 % Moisture    : NA
Calib. Ref.: SJ13019A                Instrument ID : GCT008
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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ALPHA-BHC	.017J (ND)	.05	.0099
GAMMA-BHC (LINDANE)	(ND) ND	.05	.0099
BETA-BHC	(ND) ND	.05	.0099
HEPTACHLOR	5.1 (ND)	.05	.0099
DELTA-BHC	(ND) ND	.05	.0099
ALDRIN	(ND) ND	.05	.0099
HEPTACHLOR EPOXIDE	(ND) ND	.05	.0099
GAMMA-CHLORDANE	(ND) ND	.05	.0099
ALPHA-CHLORDANE	(ND) ND	.05	.0099
ENDOSULFAN I	(ND) ND	.05	.03
4,4'-DDE	(ND) ND	.099	.03
DIELDRIN	(ND) ND	.2	.099
ENDRIN	(ND) ND	.099	.02
4,4'-DDD	(ND) ND	.099	.03
ENDOSULFAN II	(ND) ND	.099	.02
4,4'-DDT	(ND) ND	.099	.02
ENDRIN ALDEHYDE	(ND) ND	.099	.02
ENDOSULFAN SULFATE	(ND) ND	.099	.02
ENDRIN KETONE	(ND) ND	.099	.02
METHOXYCHLOR	(ND) ND	.5	.099
TOXAPHENE	(ND) ND	3	1.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(107) 65	30-130
DECACHLOROBIPHENYL	(98) 98	30-130

RL : Reporting limit  
Left of | is related to first column ; Right of | related to second column  
( ) included the reported column

SW3520C/8081A  
PESTICIDES

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=====
Client      : TETRA TECH EC, INC.      Date Collected: 10/06/05
Project     : MFA, SITE 1, CTO 86     Date Received: 10/07/05
Batch No.   : 05J053                 Date Extracted: 10/11/05 14:00
Sample ID   : 86-S1-132              Date Analyzed: 10/13/05 22:37
Lab Sample ID: J053-03               Dilution Factor: .95
Lab File ID : SJ13029A              Matrix      : WATER
Ext Btch ID: CPJ007W                % Moisture   : NA
Calib. Ref.: SJ13019A              Instrument ID : GCT008
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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ALPHA-BHC	(ND) ND	.048	.0095
GAMMA-BHC (LINDANE)	(ND) ND	.048	.0095
BETA-BHC	(ND) ND	.048	.0095
HEPTACHLOR	.95 (ND)	.048	.0095
DELTA-BHC	(ND) ND	.048	.0095
ALDRIN	(ND) .011J	.048	.0095
HEPTACHLOR EPOXIDE	(ND) ND	.048	.0095
GAMMA-CHLORDANE	(ND) ND	.048	.0095
ALPHA-CHLORDANE	(ND) ND	.048	.0095
ENDOSULFAN I	(ND) ND	.048	.028
4,4'-DDE	(ND) ND	.095	.028
DIELDRIN	(ND) ND	.19	.095
ENDRIN	(ND) ND	.095	.019
4,4'-DDD	(ND) ND	.095	.028
ENDOSULFAN II	(ND) ND	.095	.019
4,4'-DDT	(ND) ND	.095	.019
ENDRIN ALDEHYDE	(ND) ND	.095	.019
ENDOSULFAN SULFATE	(ND) ND	.095	.019
ENDRIN KETONE	(ND) ND	.095	.019
METHOXYCHLOR	(ND) ND	.48	.095
TOXAPHENE	(ND) ND	2.8	1.2
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
TETRACHLORO-M-XYLENE	(73) 68	30-130	
DECACHLOROBIPHENYL	(98) 97	30-130	

RL : Reporting limit

Left of | is related to first column ; Right of | related to second column  
( ) included the reported column

SW3520C/8081A  
PESTICIDES

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=====
Client       : TETRA TECH EC, INC.      Date Collected: 10/06/05
Project      : MFA, SITE 1, CTO 86      Date Received: 10/07/05
Batch No.    : 05J053                   Date Extracted: 10/11/05 14:00
Sample ID    : 86-S1-133                 Date Analyzed: 10/13/05 23:02
Lab Samp ID  : J053-04                   Dilution Factor: .95
Lab File ID  : SJ13030A                  Matrix          : WATER
Ext Btch ID  : CPJ007W                   % Moisture       : NA
Calib. Ref.  : SJ13019A                  Instrument ID    : GCT008
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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ALPHA-BHC	(ND)   ND	.048	.0095
GAMMA-BHC (LINDANE)	(ND)   ND	.048	.0095
BETA-BHC	(ND)   .012J	.048	.0095
HEPTACHLOR	.13 (ND)	.048	.0095
DELTA-BHC	(ND)   ND	.048	.0095
ALDRIN	(ND)   .017J	.048	.0095
HEPTACHLOR EPOXIDE	(ND)   ND	.048	.0095
GAMMA-CHLORDANE	(ND)   ND	.048	.0095
ALPHA-CHLORDANE	(ND)   ND	.048	.0095
ENDOSULFAN I	(ND)   ND	.048	.028
4,4'-DDE	(ND)   ND	.095	.028
DIELDRIN	(ND)   ND	.19	.095
ENDRIN	(ND)   ND	.095	.019
4,4'-DDD	(ND)   ND	.095	.028
ENDOSULFAN II	(ND)   ND	.095	.019
4,4'-DDT	(ND)   ND	.095	.019
ENDRIN ALDEHYDE	(ND)   ND	.095	.019
ENDOSULFAN SULFATE	(ND)   ND	.095	.019
ENDRIN KETONE	(ND)   ND	.095	.019
METHOXYCHLOR	(ND)   ND	.48	.095
TOXAPHENE	(ND)   ND	2.8	1.2
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
TETRACHLORO-M-XYLENE	(87)   86	30-130	
DECACHLOROBIPHENYL	(98)   98	30-130	

RL : Reporting limit  
Left of | is related to first column ; Right of | related to second column  
( ) included the reported column

SW3520C/8081A  
PESTICIDES

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=====
Client       : TETRA TECH EC, INC.      Date Collected: 10/06/05
Project      : MFA, SITE 1, CTO 86      Date Received: 10/07/05
Batch No.    : 05J053                   Date Extracted: 10/11/05 14:00
Sample ID    : 86-S1-134                Date Analyzed: 10/13/05 23:27
Lab Samp ID  : J053-05                  Dilution Factor: .94
Lab File ID  : SJ13031A                 Matrix          : WATER
Ext Btch ID  : CPJ007W                  % Moisture      : NA
Calib. Ref.  : SJ13019A                 Instrument ID   : GCT008
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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ALPHA-BHC	(ND) ND	.047	.0094 .0094
GAMMA-BHC (LINDANE)	(ND) ND	.047	.0094 .0094
BETA-BHC	(ND) .011J	.047	.0094 .0094
HEPTACHLOR	.068 (ND)	.047	.0094 .0094
DELTA-BHC	(ND) ND	.047	.0094 .0094
ALDRIN	(ND) .02J	.047	.0094 .0094
HEPTACHLOR EPOXIDE	(ND) ND	.047	.0094 .0094
GAMMA-CHLORDANE	.011J (ND)	.047	.0094 .0094
ALPHA-CHLORDANE	(ND) ND	.047	.0094 .0094
ENDOSULFAN I	(ND) ND	.047	.028 .028
4,4'-DDE	(ND) ND	.094	.028 .028
DIELDRIN	(ND) ND	.19	.094 .094
ENDRIN	(ND) ND	.094	.019 .019
4,4'-DDD	(ND) ND	.094	.028 .028
ENDOSULFAN II	(ND) ND	.094	.019 .019
4,4'-DDT	(ND) ND	.094	.019 .019
ENDRIN ALDEHYDE	(ND) ND	.094	.019 .019
ENDOSULFAN SULFATE	(ND) ND	.094	.019 .019
ENDRIN KETONE	(ND) ND	.094	.019 .019
METHOXYCHLOR	(ND) ND	.47	.094 .094
TOXAPHENE	(ND) ND	2.8	1.2 1.2
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
TETRACHLORO-M-XYLENE	(70) 69	30-130	
DECACHLOROBIPHENYL	(98) 98	30-130	

RL : Reporting limit  
Left of | is related to first column ; Right of | related to second column  
( ) included the reported column



SW3520C/8081A  
PESTICIDES

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=====
Client       : TETRA TECH EC, INC.      Date Collected: 10/06/05
Project      : MFA, SITE 1, CTO 86     Date Received: 10/07/05
Batch No.    : 05J053                  Date Extracted: 10/11/05 14:00
Sample ID:   86-S1-135                 Date Analyzed: 10/13/05 23:52
Lab Samp-ID: J053-06                   Dilution Factor: 1
Lab File ID: SJ13032A                  Matrix          : WATER
Ext Btch ID: CPJ007W                   % Moisture       : NA
Calib. Ref.: SJ13019A                  Instrument ID    : GCT008
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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ALPHA-BHC	(ND) ND	.05	.01 .01
GAMMA-BHC (LINDANE)	(ND) ND	.05	.01 .01
BETA-BHC	(ND) ND	.05	.01 .01
HEPTACHLOR	.54 (ND)	.05	.01 .01
DELTA-BHC	(ND) ND	.05	.01 .01
ALDRIN	.026J (ND)	.05	.01 .01
HEPTACHLOR EPOXIDE	.044J (ND)	.05	.01 .01
GAMMA-CHLORDANE	(ND) ND	.05	.01 .01
ALPHA-CHLORDANE	(ND) ND	.05	.01 .01
ENDOSULFAN I	(ND) ND	.05	.03 .03
4,4'-DDE	(ND) ND	.1	.03 .03
DIELDRIN	(ND) ND	.2	.1 .1
ENDRIN	(ND) ND	.1	.02 .02
4,4'-DDD	(ND) ND	.1	.03 .03
ENDOSULFAN II	(ND) ND	.1	.02 .02
4,4'-DDT	(ND) ND	.1	.02 .02
ENDRIN ALDEHYDE	(ND) ND	.1	.02 .02
ENDOSULFAN SULFATE	(ND) ND	.1	.02 .02
ENDRIN KETONE	(ND) ND	.1	.02 .02
METHOXYCHLOR	(ND) ND	.5	.1 .1
TOXAPHENE	(ND) ND	3	1.2 1.2
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
TETRACHLORO-M-XYLENE	(82) 73	30-130	
DECACHLOROBIPHENYL	(96) 95	30-130	

RL : Reporting limit  
Left of | is related to first column ; Right of | related to second column  
( ) included the reported column

SW3520C/8081A  
PESTICIDES

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=====
Client       : TETRA TECH EC, INC.      Date Collected: 10/06/05
Project      : MFA, SITE 1, CTO 86      Date Received: 10/07/05
Batch No.    : 05J053                   Date Extracted: 10/11/05 14:00
Sample ID:   86-S1-136                  Date Analyzed: 10/14/05 02:50
Lab Samp ID: J053-07                     Dilution Factor: .97
Lab File ID: SJ13039A                    Matrix       : WATER
Ext Btch ID: CPJ007W                     % Moisture    : NA
Calib. Ref.: SJ13035A                    Instrument ID : GCT008
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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ALPHA-BHC	(ND)   ND	.049	.0097   .0097
GAMMA-BHC (LINDANE)	(ND)   ND	.049	.0097   .0097
BETA-BHC	(ND)   .036J	.049	.0097   .0097
HEPTACHLOR	1.6 (ND)	.049	.0097   .0097
DELTA-BHC	(ND)   ND	.049	.0097   .0097
ALDRIN	.014J (ND)	.049	.0097   .0097
HEPTACHLOR EPOXIDE	(ND)   ND	.049	.0097   .0097
GAMMA-CHLORDANE	(ND)   ND	.049	.0097   .0097
ALPHA-CHLORDANE	(ND)   ND	.049	.0097   .0097
ENDOSULFAN I	(ND)   ND	.049	.029   .029
4,4'-DDE	(ND)   ND	.097	.029   .029
DIELDRIN	(ND)   ND	.19	.097   .097
ENDRIN	(ND)   ND	.097	.019   .019
4,4'-DDD	(ND)   ND	.097	.029   .029
ENDOSULFAN II	(ND)   ND	.097	.019   .019
4,4'-DDT	(ND)   ND	.097	.019   .019
ENDRIN ALDEHYDE	(ND)   ND	.097	.019   .019
ENDOSULFAN SULFATE	(ND)   ND	.097	.019   .019
ENDRIN KETONE	(ND)   ND	.097	.019   .019
METHOXYCHLOR	(ND)   ND	.49	.097   .097
TOXAPHENE	(ND)   ND	2.9	1.2   1.2
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
-----			
TETRACHLORO-M-XYLENE	(76)   71	30-130	
DECACHLOROBIPHENYL	(99)   98	30-130	

RL : Reporting limit  
Left of | is related to first column ; Right of | related to second column  
( ) included the reported column

SW3520C/8081A  
PESTICIDES

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=====
Client      : TETRA TECH EC, INC.      Date Collected: 10/06/05
Project     : MFA, SITE 1, CTO 86      Date Received: 10/07/05
Batch No.   : 05J053                   Date Extracted: 10/11/05 14:00
Sample ID: 86-S1-126                   Date Analyzed: 10/14/05 03:15
Lab Samp ID: J053-09                   Dilution Factor: .94
Lab File ID: SJ13040A                  Matrix      : WATER
Ext Btch ID: CPJ007W                   % Moisture   : NA
Calib. Ref.: SJ13035A                  Instrument ID: GCT008
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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ALPHA-BHC	(ND) ND	.047	.0094
GAMMA-BHC (LINDANE)	(ND) ND	.047	.0094
BETA-BHC	(ND) .015J	.047	.0094
HEPTACHLOR	.035J (ND)	.047	.0094
DELTA-BHC	(ND) ND	.047	.0094
ALDRIN	.014J (ND)	.047	.0094
HEPTACHLOR EPOXIDE	(ND) ND	.047	.0094
GAMMA-CHLORDANE	(ND) ND	.047	.0094
ALPHA-CHLORDANE	(ND) ND	.047	.0094
ENDOSULFAN I	(ND) ND	.047	.028
4,4'-DDE	(ND) ND	.094	.028
DIELDRIN	(ND) ND	.19	.094
ENDRIN	(ND) ND	.094	.019
4,4'-DDD	(ND) ND	.094	.028
ENDOSULFAN II	(ND) ND	.094	.019
4,4'-DDT	(ND) ND	.094	.019
ENDRIN ALDEHYDE	(ND) ND	.094	.019
ENDOSULFAN SULFATE	(ND) ND	.094	.019
ENDRIN KETONE	(ND) ND	.094	.019
METHOXYCHLOR	(ND) ND	.47	.094
TOXAPHENE	(ND) ND	2.8	1.2
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
TETRACHLORO-M-XYLENE	(85) 81	30-130	
DECACHLOROBIPHENYL	(99) 98	30-130	

RL : Reporting limit  
Left of | is related to first column ; Right of | related to second column  
( ) included the reported column

SW3520C/8081A  
PESTICIDES

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=====
Client      : TETRA TECH EC, INC.      Date Collected: 10/06/05
Project     : MFA, SITE 1, CTO 86      Date Received: 10/07/05
Batch No.   : 05J053                  Date Extracted: 10/11/05 14:00
Sample ID   : 86-S1-128                Date Analyzed: 10/14/05 03:40
Lab Samp ID : J053-10                  Dilution Factor: .94
Lab File ID : SJ13041A                 Matrix       : WATER
Ext Btch ID : CPJ007W                  % Moisture    : NA
Calib. Ref. : SJ13035A                 Instrument ID : 6CT008
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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ALPHA-BHC	(ND) ND	.047	.0094 .0094
GAMMA-BHC (LINDANE)	(ND) ND	.047	.0094 .0094
BETA-BHC	(ND) .015J	.047	.0094 .0094
HEPTACHLOR	.049 (ND)	.047	.0094 .0094
DELTA-BHC	(ND) ND	.047	.0094 .0094
ALDRIN	(ND) ND	.047	.0094 .0094
HEPTACHLOR EPOXIDE	(ND) ND	.047	.0094 .0094
GAMMA-CHLORDANE	(ND) ND	.047	.0094 .0094
ALPHA-CHLORDANE	(ND) ND	.047	.028 .028
ENDOSULFAN I	(ND) ND	.094	.028 .028
4,4'-DDE	(ND) ND	.19	.094 .094
DIELDRIN	(ND) ND	.094	.019 .019
ENDRIN	(ND) ND	.094	.028 .028
4,4'-DDD	(ND) ND	.094	.019 .019
ENDOSULFAN II	(ND) ND	.094	.019 .019
4,4'-DDT	(ND) ND	.094	.019 .019
ENDRIN ALDEHYDE	(ND) ND	.094	.019 .019
ENDOSULFAN SULFATE	(ND) ND	.094	.019 .019
ENDRIN KETONE	(ND) ND	.47	.094 .094
METHOXYCHLOR	(ND) ND	2.8	1.2 1.2
TOXAPHENE	(ND) ND		
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
TETRACHLORO-M-XYLENE	(68) 68	30-130	
DECACHLOROBIPHENYL	(96) 96	30-130	

RL : Reporting limit  
Left of | is related to first column ; Right of | related to second column  
( ) included the reported column

SW3520C/8081A  
PESTICIDES

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=====
Client      : TETRA TECH EC, INC.      Date Collected: 10/06/05
Project     : MFA, SITE 1, CTO 86      Date Received: 10/07/05
Batch No.   : 05J053                  Date Extracted: 10/11/05 14:00
Sample ID   : 86-S1-129               Date Analyzed: 10/14/05 05:47
Lab Samp ID : J053-11                 Dilution Factor: .97
Lab File ID : SJ13046A                Matrix       : WATER
Ext Btch ID : CPJ007W                 % Moisture    : NA
Calib. Ref. : SJ13035A                Instrument ID : GCT008
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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ALPHA-BHC	(ND) ND	.049	.0097
GAMMA-BHC (LINDANE)	(ND) ND	.049	.0097
BETA-BHC	(ND) .017J	.049	.0097
HEPTACHLOR	(.02J) .011J	.049	.0097
DELTA-BHC	(ND) ND	.049	.0097
ALDRIN	(ND) ND	.049	.0097
HEPTACHLOR EPOXIDE	(ND) ND	.049	.0097
GAMMA-CHLORDANE	(ND) ND	.049	.0097
ALPHA-CHLORDANE	(ND) ND	.049	.0097
ENDOSULFAN I	(ND) ND	.049	.029
4,4'-DDE	(ND) ND	.097	.029
DIELDRIN	(ND) ND	.19	.097
ENDRIN	(ND) ND	.097	.019
4,4'-DDD	(ND) ND	.097	.029
ENDOSULFAN II	(ND) ND	.097	.019
4,4'-DDT	(ND) ND	.097	.019
ENDRIN ALDEHYDE	(ND) ND	.097	.019
ENDOSULFAN SULFATE	(ND) ND	.097	.019
ENDRIN KETONE	(ND) ND	.097	.019
METHOXYCHLOR	(ND) ND	.49	.097
TOXAPHENE	(ND) ND	2.9	1.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	70 (72)	30-130
DECACHLOROBIPHENYL	(96) 95	30-130

RL : Reporting limit  
Left of | is related to first column ; Right of | related to second column  
( ) included the reported column

SW3520C/8081A  
PESTICIDES

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=====
Client      : TETRA TECH EC, INC.      Date Collected: 10/06/05
Project     : MFA, SITE 1, CTO 86      Date Received: 10/07/05
Batch No.   : 05J053                  Date Extracted: 10/11/05 14:00
Sample ID: 86-S1-130                  Date Analyzed: 10/14/05 06:12
Lab Samp ID: J053-12                  Dilution Factor: .97
Lab File ID: SJ13047A                 Matrix          : WATER
Ext Btch ID: CPJ007W                  % Moisture       : NA
Calib. Ref.: SJ13035A                 Instrument ID    : GC1008
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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ALPHA-BHC	(ND)   ND	.049	.0097   .0097
GAMMA-BHC (LINDANE)	(ND)   ND	.049	.0097   .0097
BETA-BHC	.13   (.25)	.049	.0097   .0097
HEPTACHLOR	2.8   (ND)	.049	.0097   .0097
DELTA-BHC	.012J   (ND)	.049	.0097   .0097
ALDRIN	.073   (ND)	.049	.0097   .0097
HEPTACHLOR EPOXIDE	(ND)   ND	.049	.0097   .0097
GAMMA-CHLORDANE	(ND)   ND	.049	.0097   .0097
ALPHA-CHLORDANE	(ND)   ND	.049	.0097   .0097
ENDOSULFAN I	(ND)   .055	.049	.029   .029
4,4'-DDE	.066J   (ND)	.097	.029   .029
DIELDRIN	(ND)   ND	.19	.097   .097
ENDRIN	.032J   (ND)	.097	.019   .019
4,4'-DDD	.036J   (ND)	.097	.029   .029
ENDOSULFAN II	.023J   (ND)	.097	.019   .019
4,4'-DDT	.029J   (ND)	.097	.019   .019
ENDRIN ALDENYDE	(ND)   ND	.097	.019   .019
ENDOSULFAN SULFATE	(ND)   ND	.097	.019   .019
ENDRIN KETONE	.031J   (.032J)	.097	.019   .019
METHOXYCHLOR	(ND)   ND	.49	.097   .097
TOXAPHENE	(ND)   ND	2.9	1.2   1.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(76)   67	30-130
DECACHLOROBIPHENYL	(86)   74	30-130

RL : Reporting limit  
Left of | is related to first column ; Right of | related to second column  
( ) included the reported column

**CASE NARRATIVE**

**CLIENT:** TETRA TECH EC, INC.  
**PROJECT:** MFA, SITE 1, CTO 86  
**SDG:** 05J053

**SW3520C/8082**  
**PCBs**

Ten (10) water samples were received on 10/07/05 for PCBs analysis by Method 3520C/8082 in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3<sup>rd</sup> ed.

1. **Holding Time**  
Analytical holding time was met.
2. **Instrument Performance and Calibration**  
Initial calibration was five points for PCB-1016 and PCB-1260, all RSDs were within 20%. All continue calibrations were analyzed at 12 hour interval and all recoveries were within 85-115%.
3. **Method Blank**  
Method blank was free of contamination at the reporting limit.
4. **Surrogate Recovery**  
Recoveries were within QC limit.
5. **Lab Control Sample/Lab Control Sample Duplicate**  
All recoveries were within QC limits.
6. **Matrix Spike/Matrix Spike Duplicate**  
Sample J053-10 was spiked. All recoveries were within QC limit.
7. **Sample Analysis**  
Samples were analyzed according to the prescribed QC procedures. All criteria were met.

SW3520C/8082  
PCBs

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=====
Client       : TETRA TECH EC, INC.      Date Collected: 10/06/05
Project      : MFA, SITE 1, CTO 86     Date Received: 10/07/05
Batch No.    : 05J053                  Date Extracted: 10/11/05 14:00
Sample ID:   86-S1-131                  Date Analyzed: 10/13/05 22:11
Lab Samp ID: J053-02                    Dilution Factor: .99
Lab File ID: SJ13028A                   Matrix          : WATER
Ext Btch ID: CPJ007W                    % Moisture       : NA
Calib. Ref.: SJ13022A                    Instrument ID    : GCT008
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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
PCB-1016	(ND) ND	.99	.25 .25
PCB-1221	(ND) ND	.99	.25 .25
PCB-1232	(ND) ND	.99	.25 .25
PCB-1242	(ND) ND	.99	.25 .25
PCB-1248	(ND) ND	.99	.25 .25
PCB-1254	(ND) ND	.99	.25 .25
PCB-1260	(ND) ND	.99	.25 .25

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(73) 63	30-130
DECAHCHLOROBIPHENYL	(94) 92	30-130

RL: Reporting Limit  
 Left of | is related to first column ; Right of | related to second column  
 ( ) included the reported column  
 \* Out side of QC Limit



SW3520C/8082  
PCBs

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=====
Client      : TETRA TECH EC, INC.      Date Collected: 10/06/05
Project     : MFA, SITE 1, CYO 86      Date Received: 10/07/05
Batch No.   : 05J053                  Date Extracted: 10/11/05 14:00
Sample ID: 86-S1-132                  Date Analyzed: 10/13/05 22:37
Lab Samp ID: J053-03                  Dilution Factor: .95
Lab File ID: SJ13029A                  Matrix      : WATER
Ext Btch ID: CPJ007W                  % Moisture   : NA
Calib. Ref.: SJ13022A                  Instrument ID : GCT008
=====

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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
PCB-1016	(ND) ND	.95	.24 .24
PCB-1221	(ND) ND	.95	.24 .24
PCB-1232	(ND) ND	.95	.24 .24
PCB-1242	(ND) ND	.95	.24 .24
PCB-1248	(ND) ND	.95	.24 .24
PCB-1254	(ND) ND	.95	.24 .24
PCB-1260	(ND) ND	.95	.24 .24

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(64) 62	30-130
DECACHLOROBIPHENYL	(93) 92	30-130

RL: Reporting Limit  
Left of | is related to first column ; Right of | related to second column  
( ) included the reported column  
\* Out side of QC Limit

SW3520C/8082  
PCBs

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=====
Client       : TETRA TECH EC, INC.      Date Collected: 10/06/05
Project      : MFA, SITE 1, CTO B6      Date Received: 10/07/05
Batch No.    : 05J053                   Date Extracted: 10/11/05 14:00
Sample ID    : 86-S1-133                Date Analyzed: 10/13/05 23:02
Lab Samp ID  : J053-04                  Dilution Factor: .95
Lab File ID  : SJ13030A                 Matrix          : WATER
Ext Btch ID  : CPJ007W                  % Moisture       : NA
Calib. Ref.  : SJ13022A                 Instrument ID    : GCT008
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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
PCB-1016	(ND) ND	.95	.24 .24
PCB-1221	(ND) ND	.95	.24 .24
PCB-1232	(ND) ND	.95	.24 .24
PCB-1242	(ND) ND	.95	.24 .24
PCB-1248	(ND) ND	.95	.24 .24
PCB-1254	(ND) ND	.95	.24 .24
PCB-1260	(ND) ND	.95	.24 .24

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(73) 76	30-130
DECACHLOROBIPHENYL	(93) 93	30-130

RL: Reporting Limit  
 Left of | is related to first column ; Right of | related to second column  
 ( ) included the reported column  
 \* Out side of QC Limit

SW3520C/8082  
PCBs

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=====
Client      : TETRA TECH EC, INC.      Date Collected: 10/06/05
Project     : MFA, SITE 1, CTO B6     Date Received: 10/07/05
Batch No.   : 05J053                  Date Extracted: 10/11/05 14:00
Sample ID: 86-S1-134                 Date Analyzed: 10/13/05 23:27
Lab Samp ID: J053-05                 Dilution Factor: .94
Lab File ID: SJ13031A                Matrix      : WATER
Ext Btch ID: CPJ007W                 % Moisture   : NA
Calib. Ref.: SJ13022A                 Instrument ID : GCT008
=====

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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
PCB-1016	(ND)   ND	.94	.24   .24
PCB-1221	(ND)   ND	.94	.24   .24
PCB-1232	(ND)   ND	.94	.24   .24
PCB-1242	(ND)   ND	.94	.24   .24
PCB-1248	(ND)   ND	.94	.24   .24
PCB-1254	(ND)   ND	.94	.24   .24
PCB-1260	(ND)   ND	.94	.24   .24
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
TETRACHLORO-M-XYLENE	(61)   63	30-130	
DECACHLOROBIPHENYL	(94)   93	30-130	

RL: Reporting Limit  
 Left of | is related to first column ; Right of | related to second column  
 ( ) included the reported column  
 \* Out side of QC Limit

SW3520C/8082  
PCBs

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=====
Client      : TETRA TECH EC, INC.      Date Collected: 10/06/05
Project     : MFA, SITE 1, CTO 86      Date Received: 10/07/05
Batch No.   : 05J053                   Date Extracted: 10/11/05 14:00
Sample ID: 86-S1-135                   Date Analyzed: 10/13/05 23:52
Lab Samp ID: J053-06                    Dilution Factor: 1
Lab File ID: SJ13032A                   Matrix      : WATER
Ext Btch ID: CPJ007W                    % Moisture   : NA
Calib. Ref.: SJ13022A                   Instrument ID : GCT008
=====

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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
PCB-1016	(ND) ND	1	.25 .25
PCB-1221	(ND) ND	1	.25 .25
PCB-1232	(ND) ND	1	.25 .25
PCB-1242	(ND) ND	1	.25 .25
PCB-1248	(ND) ND	1	.25 .25
PCB-1254	(ND) ND	1	.25 .25
PCB-1260	(ND) ND	1	.25 .25

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(73) 68	30-130
DECACHLOROBIPHENYL	(91) 90	30-130

RL: Reporting Limit

Left of | is related to first column ; Right of | related to second column

( ) included the reported column

\* Out side of QC Limit

SW3520C/8082  
PCBs

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=====
Client      : TETRA TECH EC, INC.      Date Collected: 10/06/05
Project     : MFA, SITE 1, CTO 86      Date Received: 10/07/05
Batch No.   : 05J053                   Date Extracted: 10/11/05 14:00
Sample ID   : 86-S1-136                 Date Analyzed: 10/14/05 02:50
Lab Samp ID : J053-07                    Dilution Factor: .97
Lab File ID : SJ13039A                   Matrix      : WATER
Ext Btch ID : CPJ007W                     % Moisture   : NA
Calib. Ref. : SJ13038A                    Instrument ID : GCT008
=====
```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
PCB-1016	(ND) ND	.97	.24 .24
PCB-1221	(ND) ND	.97	.24 .24
PCB-1232	(ND) ND	.97	.24 .24
PCB-1242	(ND) ND	.97	.24 .24
PCB-1248	(ND) ND	.97	.24 .24
PCB-1254	(ND) ND	.97	.24 .24
PCB-1260	(ND) ND	.97	.24 .24
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
TETRACHLORO-M-XYLENE	(68) 67	30-130	
DECAHCHLOROBIPHENYL	(94) 92	30-130	

RL: Reporting Limit  
 Left of | is related to first column ; Right of | related to second column  
 ( ) included the reported column  
 \* Out side of QC Limit

SW3520C/8082  
PCBs

```

=====
Client      : TETRA TECH EC, INC.      Date Collected: 10/06/05
Project     : MFA, SITE 1, CTO 86      Date Received: 10/07/05
Batch No.   : 05J053                  Date Extracted: 10/11/05 14:00
Sample ID:  B6-S1-126                 Date Analyzed: 10/14/05 03:15
Lab Samp ID: J053-09                  Dilution Factor: .94
Lab File ID: SJ13040A                 Matrix      : WATER
Ext Btch ID: CPJ007W                  % Moisture   : NA
Calib. Ref.: SJ13038A                 Instrument ID: GCT008
=====
  
```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
PCB-1016	(ND) ND	.94	.24 .24
PCB-1221	(ND) ND	.94	.24 .24
PCB-1232	(ND) ND	.94	.24 .24
PCB-1242	(ND) ND	.94	.24 .24
PCB-1248	(ND) ND	.94	.24 .24
PCB-1254	(ND) ND	.94	.24 .24
PCB-1260	(ND) ND	.94	.24 .24
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
TETRACHLORO-M-XYLENE	(75) 75	30-130	
DECACHLOROBIPHENYL	(93) 93	30-130	

RL: Reporting Limit  
 Left of | is related to first column ; Right of | related to second column  
 ( ) included the reported column  
 \* Out side of QC Limit

SW3520G/8082  
PCBs

```

=====
Client      : TETRA TECH EC, INC.      Date Collected: 10/06/05
Project     : MFA, SITE 1, CTO 86      Date Received: 10/07/05
Batch No.   : 05J053                  Date Extracted: 10/11/05 14:00
Sample ID   : 86-S1-128                Date Analyzed: 10/14/05 03:40
Lab Samp ID : J053-10                  Dilution Factor: .94
Lab File ID : SJ13041A                 Matrix       : WATER
Ext Btch ID : CPJ007W                  % Moisture    : NA
Calib. Ref. : SJ13038A                 Instrument ID : GCT008
=====

```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
PCB-1016	(ND) ND	.94	.24 .24
PCB-1221	(ND) ND	.94	.24 .24
PCB-1232	(ND) ND	.94	.24 .24
PCB-1242	(ND) ND	.94	.24 .24
PCB-1248	(ND) ND	.94	.24 .24
PCB-1254	(ND) ND	.94	.24 .24
PCB-1260	(ND) ND	.94	.24 .24
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
TETRACHLORO-M-XYLENE	(59) 61	30-130	
DECACHLOROBIPHENYL	(91) 91	30-130	

RL: Reporting Limit  
 Left of | is related to first column ; Right of | related to second column  
 ( ) included the reported column  
 \* Out side of QC Limit

SW3520C/8082  
PCBs

```

=====
Client       : TETRA TECH EC, INC.      Date Collected: 10/06/05
Project      : MFA, SITE 1, CTO 86      Date Received: 10/07/05
Batch No.    : 05J053                   Date Extracted: 10/11/05 14:00
Sample ID:   86-S1-129                   Date Analyzed: 10/14/05 05:47
Lab Samp ID: J053-11                     Dilution Factor: .97
Lab File ID: SJ13046A                     Matrix       : WATER
Ext Btch ID: CPJ007W                       % Moisture    : NA
Calib. Ref.: SJ13038A                     Instrument ID : GCT008
=====

```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
PCB-1016	(ND) ND	.97	.24 .24
PCB-1221	(ND) ND	.97	.24 .24
PCB-1232	(ND) ND	.97	.24 .24
PCB-1242	(ND) ND	.97	.24 .24
PCB-1248	(ND) ND	.97	.24 .24
PCB-1254	(ND) ND	.97	.24 .24
PCB-1260	(ND) ND	.97	.24 .24

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(63) 67	30-130
DECACHLOROBIPHENYL	(91) 90	30-130

RL: Reporting Limit  
 Left of | is related to first column ; Right of | related to second column  
 ( ) included the reported column  
 \* Out side of QC Limit



SW3520C/8082  
PCBs

```
=====
Client       : TETRA TECH EC, INC.      Date Collected: 10/06/05
Project      : MFA, SITE 1, CTO 86      Date Received: 10/07/05
Batch No.    : 05J053                   Date Extracted: 10/11/05 14:00
Sample ID:   86-S1-130                   Date Analyzed: 10/14/05 06:12
Lab Samp ID: J053-12                     Dilution Factor: .97
Lab File ID: SJ13047A                    Matrix       : WATER
Ext Btch ID: CPJ007W                     % Moisture    : NA
Calib. Ref.: SJ13038A                     Instrument ID : GGT008
=====
```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
PCB-1016	(ND) ND	.97	.24 .24
PCB-1221	(ND) ND	.97	.24 .24
PCB-1232	(ND) ND	.97	.24 .24
PCB-1242	(ND) ND	.97	.24 .24
PCB-1248	(ND) ND	.97	.24 .24
PCB-1254	(ND) ND	.97	.24 .24
PCB-1260	(ND) ND	.97	.24 .24

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(67) 76	30-130
DECACHLOROBIPHENYL	(82) 91	30-130

RL: Reporting Limit  
 Left of | is related to first column ; Right of | related to second column  
 ( ) included the reported column  
 \* Out side of QC Limit

**CASE NARRATIVE**

**CLIENT:** TETRA TECH EC, INC.  
**PROJECT:** MFA, SITE 1, CTO 86  
**SDG:** 05J053

**METHOD 7470A**  
**DISSOLVED MERCURY BY COLD VAPOR**

Ten (10) water samples were received on 10/07/05 for Dissolved Mercury analysis by Method 7470A in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3<sup>rd</sup> edition.

**1. Holding Time**

Analysis met holding time criteria.

**2. Method Blank**

Method blank was free of contamination at the reporting limit.

**3. Lab Control Sample/Lab Control Sample Duplicate**

Lab control results were within QC limit.

**4. Serial Dilution / Post-Analytical Spike**

Sample J053-10 was analyzed for serial dilution and post-analytical spike. All QC requirements were met.

**5. Matrix Spike/Matrix Spike Duplicate**

Sample J053-10 was spiked. MS recovery was within QC limit but was out of the limit in MSD.

**6. Sample Analysis**

Samples were analyzed according to the prescribed QC procedures. All criteria were met with the aforementioned exception.

Samples were initially analyzed at DF 20 due to matrix interference of high salt level.

METHOD 7470A  
DISSOLVED MERCURY BY COLD VAPOR

Client : TETRA TECH EC, INC.  
Project : MFA, SITE 1, CTO 86  
Batch No. : 05J053

Matrix : WATER  
Instrument ID : T1047

SAMPLE ID	EMAX SAMPLE ID	RESULTS (ug/L)	DLF	MOIST	RL (ug/L)	MDL (ug/L)	Analysis DATE/TIME	Extraction DATE/TIME	LFID	CAL REF	PREP BATCH	Collection DATE/TIME	Received DATE/TIME
MBLK1W	HGJ013WB	ND	1	NA	.2	.1	10/13/0514:11	10/13/0511:00	M47J012010	M47J012008	HGJ013W	NA	10/13/05
LCS1W	HGJ013WL	4.99	1	NA	.2	.1	10/13/0514:13	10/13/0511:00	M47J012011	M47J012008	HGJ013W	NA	10/13/05
LCD1W	HGJ013WC	5	1	NA	.2	.1	10/13/0514:15	10/13/0511:00	M47J012012	M47J012008	HGJ013W	NA	10/13/05
86-S1-128AS	J053-10A	38.6	20	NA	4	2	10/13/0515:15	10/13/0511:00	M47J012039	M47J012032	HGJ013W	10/06/05	10/07/05
86-S1-128B	J053-10	ND	20	NA	4	2	10/13/0515:17	10/13/0511:00	M47J012040	M47J012032	HGJ013W	10/06/05	10/07/05
86-S1-128B1	J053-10J	ND	100	NA	20	10	10/13/0515:19	10/13/0511:00	M47J012041	M47J012032	HGJ013W	10/06/05	10/07/05
86-S1-128MS	J053-10M	3.84J	20	NA	4	2	10/13/0515:21	10/13/0511:00	M47J012042	M47J012032	HGJ013W	10/06/05	10/07/05
86-S1-128MSD	J053-10S	3.34J	20	NA	4	2	10/13/0515:23	10/13/0511:00	M47J012043	M47J012032	HGJ013W	10/06/05	10/07/05
86-S1-131	J053-02	ND	20	NA	4	2	10/13/0515:29	10/13/0511:00	M47J012046	M47J012044	HGJ013W	10/06/05	10/07/05
86-S1-132	J053-03	ND	20	NA	4	2	10/13/0515:31	10/13/0511:00	M47J012047	M47J012044	HGJ013W	10/06/05	10/07/05
86-S1-133	J053-04	ND	20	NA	4	2	10/13/0515:34	10/13/0511:00	M47J012048	M47J012044	HGJ013W	10/06/05	10/07/05
86-S1-134	J053-05	ND	20	NA	4	2	10/13/0515:36	10/13/0511:00	M47J012049	M47J012044	HGJ013W	10/06/05	10/07/05
86-S1-135	J053-06	ND	20	NA	4	2	10/13/0515:38	10/13/0511:00	M47J012050	M47J012044	HGJ013W	10/06/05	10/07/05
86-S1-136	J053-07	ND	20	NA	4	2	10/13/0515:40	10/13/0511:00	M47J012051	M47J012044	HGJ013W	10/06/05	10/07/05
86-S1-126	J053-09	ND	20	NA	4	2	10/13/0515:42	10/13/0511:00	M47J012052	M47J012044	HGJ013W	10/06/05	10/07/05
86-S1-129	J053-11	ND	20	NA	4	2	10/13/0515:44	10/13/0511:00	M47J012053	M47J012044	HGJ013W	10/06/05	10/07/05
86-S1-130	J053-12	ND	20	NA	4	2	10/13/0515:46	10/13/0511:00	M47J012054	M47J012044	HGJ013W	10/06/05	10/07/05

RL: Reporting Limit

7003

## COLUMBIA ANALYTICAL SERVICES, INC.

Client: Emax Laboratories, Incorporated  
Project: Moffett  
Sample Matrix: Water

Service Request No.: K0504756  
Date Received: 10/12/2005

### CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier III validation deliverables including summary forms and all of the associated raw data for each of the analyses. When appropriate to the method, method blank results have been reported with each analytical test.

#### Sample Receipt

Twelve water samples were received for analysis at Columbia Analytical Services on 10/12/2005. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

#### Dissolved Metals

##### **Matrix Spike Recovery Exceptions:**

The matrix spike recoveries of Beryllium (59%), Cobalt (59%), Copper (74%), Lead (70%), and Thallium (72%) for Batch QC sample were outside the project specified control limits of 75-125%. All the recoveries were within the CAS statistically derived limits for the reductive precipitation procedure. Based on the CAS statistical control limits, the recoveries observed are in the range expected for this procedure. Recovery in the Laboratory Control Sample (LCS) was acceptable, which indicates the analytical batch was in control. No further corrective action was appropriate.

Approved by \_\_\_\_\_

Date \_\_\_\_\_

## DISSOLVED METALS

-1-

## INORGANIC ANALYSIS DATA SHEET

Client: Emax Laboratories, Incorporated

Service Request: K0504756

Project No.: NA

Date Collected: 10/04/05

Project Name: Moffett

Date Received: 10/12/05

Matrix: WATER

Units: µG/L

Basis: NA

Sample Name: 86-S1-124

Lab Code: K0504756-001 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010B	50	40	1	10/26/05	11/2/05	40	U	
Antimony	200.8	2.000	0.200	2	10/22/05	11/2/05	0.376	B	
Arsenic	200.8	0.56	0.01	1	11/19/05	11/22/05	1.61		
Barium	200.8	2.00	0.24	2	10/22/05	11/2/05	107		
Beryllium	200.8	0.0222	0.0007	1	11/19/05	11/22/05	0.0073	B	N
Cadmium	200.8	0.022	0.002	1	11/19/05	11/22/05	0.407		
Chromium	200.8	0.22	0.03	1	11/19/05	11/22/05	0.44		
Cobalt	200.8	0.022	0.002	1	11/19/05	11/22/05	7.690		N
Copper	200.8	0.111	0.006	1	11/19/05	11/22/05	2.640		N
Lead	200.8	0.022	0.009	1	11/19/05	11/22/05	0.131		N
Nickel	200.8	0.22	0.02	1	11/19/05	11/22/05	16.3		
Selenium	7742	1.0	0.3	2	10/26/05	11/22/05	0.3	U	
Silver	200.8	0.022	0.002	1	11/19/05	11/22/05	0.093		
Thallium	200.8	0.0222	0.0006	1	11/19/05	11/22/05	0.0403		N
Vanadium	6010B	20.0	7.0	1	10/26/05	11/2/05	13.7	B	
Zinc	200.8	0.56	0.02	1	11/19/05	11/22/05	20.1		

% Solids: 0.0

Comments: Dissolved Metals

## DISSOLVED METALS

-1-

## INORGANIC ANALYSIS DATA SHEET

Client: Emax Laboratories, Incorporated

Service Request: K0504756

Project No.: NA

Date Collected: 10/04/05

Project Name: Moffett

Date Received: 10/12/05

Matrix: WATER

Units: µG/L

Basis: NA

Sample Name: 86-S1-125

Lab Code: K0504756-002 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010B	50	40	1	10/26/05	11/2/05	40	U	
Antimony	200.8	2.000	0.200	2	10/22/05	11/2/05	0.200	B	
Arsenic	200.8	1.11	0.02	2	11/19/05	11/22/05	4.47		
Barium	200.8	2.00	0.24	2	10/22/05	11/2/05	176		
Beryllium	200.8	0.0222	0.0007	1	11/19/05	11/22/05	0.0108	B	N
Cadmium	200.8	0.044	0.004	2	11/19/05	11/22/05	0.004	U	
Chromium	200.8	0.44	0.07	2	11/19/05	11/22/05	0.84		
Cobalt	200.8	0.044	0.004	2	11/19/05	11/22/05	3.320		N
Copper	200.8	0.222	0.011	2	11/19/05	11/22/05	0.100	B	N
Lead	200.8	0.044	0.018	2	11/19/05	11/22/05	0.022	B	N
Nickel	200.8	0.44	0.04	2	11/19/05	11/22/05	6.46		
Selenium	7742	1.0	0.3	2	10/26/05	11/22/05	0.3	U	
Silver	200.8	0.044	0.004	2	11/19/05	11/22/05	0.004	U	
Thallium	200.8	0.0444	0.0011	2	11/19/05	11/22/05	0.0011	U	N
Vanadium	6010B	20.0	7.0	1	10/26/05	11/2/05	12.1	B	
Zinc	200.8	1.11	0.04	2	11/19/05	11/22/05	0.64	B	

% Solids: 0.0

Comments: Dissolved Metals

DISSOLVED METALS  
-1-  
INORGANIC ANALYSIS DATA SHEET

Client: Emax Laboratories, Incorporated  
Project No.: NA  
Project Name: Moffett  
Matrix: WATER

Service Request: K0504756  
Date Collected: 10/06/05  
Date Received: 10/12/05  
Units: µG/L  
Basis: NA

Sample Name: 86-S1-131

Lab Code: K0504756-003 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010B	50	40	1	10/26/05	11/2/05	40	U	
Antimony	200.8	1.000	0.100	1	10/22/05	11/2/05	0.244	B	
Arsenic	200.8	0.56	0.01	1	11/19/05	11/22/05	0.95		
Barium	200.8	1.00	0.12	1	10/22/05	11/2/05	576		
Beryllium	200.8	0.0222	0.0007	1	11/19/05	11/22/05	0.0042	B	N
Cadmium	200.8	0.022	0.002	1	11/19/05	11/22/05	0.002	U	
Chromium	200.8	0.22	0.03	1	11/19/05	11/22/05	0.56		
Cobalt	200.8	0.022	0.002	1	11/19/05	11/22/05	1.730		N
Copper	200.8	0.111	0.006	1	11/19/05	11/22/05	0.031	B	N
Lead	200.8	0.022	0.009	1	11/19/05	11/22/05	0.009	U	N
Nickel	200.8	0.22	0.02	1	11/19/05	11/22/05	4.69		
Selenium	7742	1.0	0.3	2	10/26/05	11/22/05	0.3	U	
Silver	200.8	0.022	0.002	1	11/19/05	11/22/05	0.002	U	
Thallium	200.8	0.0222	0.0006	1	11/19/05	11/22/05	0.0014	B	N
Vanadium	6010B	20.0	7.0	1	10/26/05	11/2/05	9.8	B	
Zinc	200.8	0.56	0.02	1	11/19/05	11/22/05	1.84		

% Solids: 0.0

Comments: Dissolved Metals

## DISSOLVED METALS

-1-

## INORGANIC ANALYSIS DATA SHEET

Client: Emax Laboratories, Incorporated

Service Request: K0504756

Project No.: NA

Date Collected: 10/06/05

Project Name: Moffett

Date Received: 10/12/05

Matrix: WATER

Units: µG/L

Basis: NA

Sample Name: 86-S1-132

Lab Code: K0504756-004 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010B	50	40	1	10/26/05	11/2/05	40	U	
Antimony	200.8	1.000	0.100	1	10/22/05	11/2/05	0.236	B	
Arsenic	200.8	0.56	0.01	1	11/19/05	11/22/05	1.95		
Barium	200.8	1.00	0.12	1	10/22/05	11/2/05	556		
Beryllium	200.8	0.0222	0.0007	1	11/19/05	11/22/05	0.0046	B	N
Cadmium	200.8	0.022	0.002	1	11/19/05	11/22/05	0.002	U	
Chromium	200.8	0.22	0.03	1	11/19/05	11/22/05	0.59		
Cobalt	200.8	0.022	0.002	1	11/19/05	11/22/05	2.990		N
Copper	200.8	0.111	0.006	1	11/19/05	11/22/05	0.060	B	N
Lead	200.8	0.022	0.009	1	11/19/05	11/22/05	0.009	U	N
Nickel	200.8	0.22	0.02	1	11/19/05	11/22/05	4.80		
Selenium	7742	1.0	0.3	2	10/26/05	11/22/05	0.3	U	
Silver	200.8	0.022	0.002	1	11/19/05	11/22/05	0.002	U	
Thallium	200.8	0.0222	0.0006	1	11/19/05	11/22/05	0.0011	B	N
Vanadium	6010B	20.0	7.0	1	10/26/05	11/2/05	10.3	B	
Zinc	200.8	0.56	0.02	1	11/19/05	11/22/05	2.25		

% Solids: 0.0

Comments: Dissolved Metals



## DISSOLVED METALS

-1-

## INORGANIC ANALYSIS DATA SHEET

Client: Emax Laboratories, Incorporated

Service Request: K0504756

Project No.: NA

Date Collected: 10/06/05

Project Name: Moffett

Date Received: 10/12/05

Matrix: WATER

Units: µg/L

Basis: NA

Sample Name: 86-S1-133

Lab Code: K0504756-005 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010B	50	40	1	10/26/05	11/2/05	40	U	
Antimony	200.8	2.000	0.200	2	10/22/05	11/2/05	0.200	U	
Arsenic	200.8	1.05	0.02	2	11/19/05	11/22/05	3.86		
Barium	200.8	2.00	0.24	2	10/22/05	11/2/05	150		
Beryllium	200.8	0.0421	0.0013	2	11/19/05	11/22/05	0.0072	B	N
Cadmium	200.8	0.042	0.004	2	11/19/05	11/22/05	0.004	U	
Chromium	200.8	0.42	0.06	2	11/19/05	11/22/05	0.61		
Cobalt	200.8	0.042	0.004	2	11/19/05	11/22/05	2.270		N
Copper	200.8	0.211	0.011	2	11/19/05	11/22/05	0.099	B	N
Lead	200.8	0.042	0.017	2	11/19/05	11/22/05	0.017	U	N
Nickel	200.8	0.42	0.04	2	11/19/05	11/22/05	5.45		
Selenium	7742	1.0	0.3	2	10/26/05	11/22/05	0.3	U	
Silver	200.8	0.042	0.004	2	11/19/05	11/22/05	0.004	U	
Thallium	200.8	0.0421	0.0011	2	11/19/05	11/22/05	0.0011	U	N
Vanadium	6010B	20.0	7.0	1	10/26/05	11/2/05	7.3	B	
Zinc	200.8	1.05	0.04	2	11/19/05	11/22/05	31.3		

% Solids: 0.0

Comments: Dissolved Metals

## DISSOLVED METALS

-1-

## INORGANIC ANALYSIS DATA SHEET

Client: Emax Laboratories, Incorporated

Service Request: K0504756

Project No.: NA

Date Collected: 10/06/05

Project Name: Moffett

Date Received: 10/12/05

Matrix: WATER

Units: µG/L

Basis: NA

Sample Name: 86-S1-134

Lab Code: K0504756-006 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010B	50	40	1	10/26/05	11/2/05	40	U	
Antimony	200.8	2.000	0.200	2	10/22/05	11/2/05	0.200	U	
Arsenic	200.8	1.11	0.02	2	11/19/05	11/22/05	4.33		
Barium	200.8	2.00	0.24	2	10/22/05	11/2/05	150		
Beryllium	200.8	0.0444	0.0013	2	11/19/05	11/22/05	0.0079	B	N
Cadmium	200.8	0.044	0.004	2	11/19/05	11/22/05	0.004	U	
Chromium	200.8	0.44	0.07	2	11/19/05	11/22/05	0.50		
Cobalt	200.8	0.044	0.004	2	11/19/05	11/22/05	2.280		N
Copper	200.8	0.222	0.011	2	11/19/05	11/22/05	0.093	B	N
Lead	200.8	0.044	0.018	2	11/19/05	11/22/05	0.026	B	N
Nickel	200.8	0.44	0.04	2	11/19/05	11/22/05	5.46		
Selenium	7742	1.0	0.3	2	10/26/05	11/22/05	0.3	U	
Silver	200.8	0.044	0.004	2	11/19/05	11/22/05	0.004	U	
Thallium	200.8	0.0444	0.0011	2	11/19/05	11/22/05	0.0011	U	N
Vanadium	6010B	20.0	7.0	1	10/26/05	11/2/05	10.6	B	
Zinc	200.8	1.11	0.04	2	11/19/05	11/22/05	20.6		

% Solids: 0.0

Comments: Dissolved Metals

## DISSOLVED METALS

-1-

## INORGANIC ANALYSIS DATA SHEET

Client: Emax Laboratories, Incorporated

Service Request: K0504756

Project No.: NA

Date Collected: 10/06/05

Project Name: Moffett

Date Received: 10/12/05

Matrix: WATER

Units: µg/L

Basis: NA

Sample Name: 86-S1-135

Lab Code: K0504756-007 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010B	50	40	1	10/26/05	11/2/05	45.2	B	
Antimony	200.8	1.000	0.100	1	10/22/05	11/2/05	0.306	B	
Arsenic	200.8	2.22	0.04	2	11/19/05	11/22/05	7.25		
Barium	200.8	1.00	0.12	1	10/22/05	11/2/05	398		
Beryllium	200.8	0.0444	0.0013	1	11/19/05	11/22/05	0.0242	B	N
Cadmium	200.8	0.089	0.009	2	11/19/05	11/22/05	0.009	U	
Chromium	200.8	0.89	0.13	2	11/19/05	11/22/05	2.51		
Cobalt	200.8	0.089	0.009	2	11/19/05	11/22/05	2.870		N
Copper	200.8	0.444	0.022	2	11/19/05	11/22/05	0.140	B	N
Lead	200.8	0.089	0.036	2	11/19/05	11/22/05	0.072	B	N
Nickel	200.8	0.89	0.09	2	11/19/05	11/22/05	9.48		
Selenium	7742	1.0	0.3	2	10/26/05	11/22/05	0.3	U	
Silver	200.8	0.089	0.009	2	11/19/05	11/22/05	0.009	U	
Thallium	200.8	0.0889	0.0022	2	11/19/05	11/22/05	0.0022	U	N
Vanadium	6010B	20.0	7.0	1	10/26/05	11/2/05	16.6	B	
Zinc	200.8	2.22	0.09	2	11/19/05	11/22/05	0.82	B	

% Solids: 0.0

Comments: Dissolved Metals

## DISSOLVED METALS

-1-

## INORGANIC ANALYSIS DATA SHEET

Client: Emax Laboratories, Incorporated  
 Project No.: NA  
 Project Name: Moffett  
 Matrix: WATER

Service Request: K0504756  
 Date Collected: 10/06/05  
 Date Received: 10/12/05  
 Units: µG/L  
 Basis: NA

Sample Name: 86-S1-136

Lab Code: K0504756-008 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010B	50	40	1	10/26/05	11/2/05	40	U	
Antimony	200.8	2.000	0.200	2	10/22/05	11/2/05	0.200	U	
Arsenic	200.8	2.22	0.04	2	11/19/05	11/22/05	7.72		
Barium	200.8	2.00	0.24	2	10/22/05	11/2/05	458		
Beryllium	200.8	0.0889	0.0027	2	11/19/05	11/22/05	0.0294	B	N
Cadmium	200.8	0.089	0.009	2	11/19/05	11/22/05	0.009	U	
Chromium	200.8	0.89	0.13	2	11/19/05	11/22/05	0.92		
Cobalt	200.8	0.089	0.009	2	11/19/05	11/22/05	7.280		N
Copper	200.8	0.444	0.022	2	11/19/05	11/22/05	0.125	B	N
Lead	200.8	0.089	0.036	2	11/19/05	11/22/05	0.041	B	N
Nickel	200.8	0.89	0.09	2	11/19/05	11/22/05	12.5		
Selenium	7742	1.0	0.3	2	10/26/05	11/22/05	0.3	U	
Silver	200.8	0.089	0.009	2	11/19/05	11/22/05	0.009	U	
Thallium	200.8	0.0889	0.0022	2	11/19/05	11/22/05	0.0022	U	N
Vanadium	6010B	20.0	7.0	1	10/26/05	11/2/05	15.1	B	
Zinc	200.8	2.22	0.09	2	11/19/05	11/22/05	0.74	B	

% Solids: 0.0

Comments: Dissolved Metals

## DISSOLVED METALS

-1-

## INORGANIC ANALYSIS DATA SHEET

Client: Emax Laboratories, Incorporated

Service Request: K0504756

Project No.: NA

Date Collected: 10/06/05

Project Name: Moffett

Date Received: 10/12/05

Matrix: WATER

Units: µG/L

Basis: NA

Sample Name: 86-S1-126

Lab Code: K0504756-009 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010B	50	40	1	10/26/05	11/2/05	40	U	
Antimony	200.8	2.000	0.200	2	10/22/05	11/2/05	0.200	U	
Arsenic	200.8	1.18	0.02	2	11/19/05	11/22/05	2.97		
Barium	200.8	2.00	0.24	2	10/22/05	11/2/05	99.9		
Beryllium	200.8	0.0235	0.0007	1	11/19/05	11/22/05	0.0065	B	N
Cadmium	200.8	0.047	0.005	2	11/19/05	11/22/05	0.473		
Chromium	200.8	0.47	0.07	2	11/19/05	11/22/05	0.35	B	
Cobalt	200.8	0.047	0.005	2	11/19/05	11/22/05	9.690		N
Copper	200.8	0.235	0.012	2	11/19/05	11/22/05	0.494		N
Lead	200.8	0.047	0.019	2	11/19/05	11/22/05	0.036	B	N
Nickel	200.8	0.47	0.05	2	11/19/05	11/22/05	14.5		
Selenium	7742	1.0	0.3	2	10/26/05	11/22/05	0.3	U	
Silver	200.8	0.047	0.005	2	11/19/05	11/22/05	0.005	U	
Thallium	200.8	0.0471	0.0012	2	11/19/05	11/22/05	0.0517		N
Vanadium	6010B	20.0	7.0	1	10/26/05	11/2/05	11.6	B	
Zinc	200.8	1.18	0.05	2	11/19/05	11/22/05	17.4		

% Solids: 0.0

Comments: Dissolved Metals

## DISSOLVED METALS

-1-

## INORGANIC ANALYSIS DATA SHEET

Client: Emax Laboratories, Incorporated  
 Project No.: NA  
 Project Name: Moffett  
 Matrix: WATER

Service Request: K0504756  
 Date Collected: 10/06/05  
 Date Received: 10/12/05  
 Units: µg/L  
 Basis: NA

Sample Name: 86-S1-128

Lab Code: K0504756-010 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010B	50	40	1	10/26/05	11/2/05	40	U	
Antimony	200.8	2.000	0.200	2	10/22/05	11/2/05	0.200	U	
Arsenic	200.8	1.25	0.03	2	11/19/05	11/22/05	5.28		
Barium	200.8	2.00	0.24	2	10/22/05	11/2/05	159		
Beryllium	200.8	0.0250	0.0008	1	11/19/05	11/22/05	0.0102	B	N
Cadmium	200.8	0.050	0.005	2	11/19/05	11/22/05	0.005	U	
Chromium	200.8	0.50	0.08	2	11/19/05	11/22/05	0.44	B	
Cobalt	200.8	0.050	0.005	2	11/19/05	11/22/05	8.340		N
Copper	200.8	0.250	0.013	2	11/19/05	11/22/05	0.075	B	N
Lead	200.8	0.050	0.020	2	11/19/05	11/22/05	0.020	U	N
Nickel	200.8	0.50	0.05	2	11/19/05	11/22/05	10.3		
Selenium	7742	1.0	0.3	2	10/26/05	11/22/05	0.3	U	
Silver	200.8	0.050	0.005	2	11/19/05	11/22/05	0.005	U	
Thallium	200.8	0.0500	0.0013	2	11/19/05	11/22/05	0.0031	B	N
Vanadium	6010B	20.0	7.0	1	10/26/05	11/2/05	13.0	B	
Zinc	200.8	1.25	0.05	2	11/19/05	11/22/05	1.09	B	

% Solids: 0.0

Comments: Dissolved Metals

## DISSOLVED METALS

-1-

## INORGANIC ANALYSIS DATA SHEET

Client: Emax Laboratories, Incorporated

Service Request: K0504756

Project No.: NA

Date Collected: 10/06/05

Project Name: Moffett

Date Received: 10/12/05

Matrix: WATER

Units: µg/L

Basis: NA

Sample Name: 86-S1-129

Lab Code: K0504756-011 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010B	50	40	1	10/26/05	11/2/05	40	U	
Antimony	200.8	2.000	0.200	2	10/22/05	11/2/05	0.200	U	
Arsenic	200.8	1.11	0.02	2	11/19/05	11/22/05	2.53		
Barium	200.8	2.00	0.24	2	10/22/05	11/2/05	72.0		
Beryllium	200.8	0.0222	0.0007	1	11/19/05	11/22/05	0.0054	B	N
Cadmium	200.8	0.044	0.004	2	11/19/05	11/22/05	0.742		
Chromium	200.8	0.44	0.07	2	11/19/05	11/22/05	0.36	B	
Cobalt	200.8	0.044	0.004	2	11/19/05	11/22/05	5.250		N
Copper	200.8	0.222	0.011	2	11/19/05	11/22/05	0.205	B	N
Lead	200.8	0.044	0.018	2	11/19/05	11/22/05	0.018	U	N
Nickel	200.8	0.44	0.04	2	11/19/05	11/22/05	10.1		
Selenium	7742	1.0	0.3	2	10/26/05	11/22/05	0.3	U	
Silver	200.8	0.044	0.004	2	11/19/05	11/22/05	0.004	U	
Thallium	200.8	0.0444	0.0011	2	11/19/05	11/22/05	0.0380	B	N
Vanadium	6010B	20.0	7.0	1	10/26/05	11/2/05	14.7	B	
Zinc	200.8	1.11	0.04	2	11/19/05	11/22/05	44.3		

% Solids: 0.0

Comments: Dissolved Metals

## DISSOLVED METALS

-1-

## INORGANIC ANALYSIS DATA SHEET

Client: Emax Laboratories, Incorporated  
 Project No.: NA  
 Project Name: Moffett  
 Matrix: WATER

Service Request: K0504756  
 Date Collected: 10/06/05  
 Date Received: 10/12/05  
 Units: µG/L  
 Basis: NA

Sample Name: 86-S1-130

Lab Code: K0504756-012 DISS

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010B	50	40	1	10/26/05	11/2/05	50.3		
Antimony	200.8	1.000	0.100	1	10/22/05	11/2/05	0.484	B	
Arsenic	200.8	1.11	0.02	2	11/19/05	11/22/05	1.93		
Barium	200.8	1.00	0.12	1	10/22/05	11/2/05	1260		
Beryllium	200.8	0.0222	0.0007	1	11/19/05	11/22/05	0.0169	B	N
Cadmium	200.8	0.044	0.004	2	11/19/05	11/22/05	0.004	U	
Chromium	200.8	0.44	0.07	2	11/19/05	11/22/05	7.41		
Cobalt	200.8	0.044	0.004	2	11/19/05	11/22/05	0.360		N
Copper	200.8	0.222	0.011	2	11/19/05	11/22/05	0.135	B	N
Lead	200.8	0.044	0.018	2	11/19/05	11/22/05	0.019	B	N
Nickel	200.8	0.44	0.04	2	11/19/05	11/22/05	61.6		
Selenium	7742	1.0	0.3	2	10/26/05	11/22/05	0.3	U	
Silver	200.8	0.044	0.004	2	11/19/05	11/22/05	0.004	U	
Thallium	200.8	0.0444	0.0011	2	11/19/05	11/22/05	0.0011	U	N
Vanadium	6010B	20.0	7.0	1	10/26/05	11/2/05	14.6	B	
Zinc	200.8	1.11	0.04	2	11/19/05	11/22/05	20.2		

% Solids: 0.0

Comments: Dissolved Metals



## DISSOLVED METALS

-1-

## INORGANIC ANALYSIS DATA SHEET

Client: Emax Laboratories, Incorporated  
 Project No.: NA  
 Project Name: Moffett  
 Matrix: WATER

Service Request: K0504756

Date Collected:

Date Received:

Units: µg/L

Basis: NA

Sample Name: Method Blank

Lab Code: K0504756-MB

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010B	50	40	1	10/26/05	11/2/05	40	U	
Antimony	200.8	1.000	0.100	1	10/22/05	11/2/05	0.100	U	
Arsenic	200.8	0.50	0.01	1	11/19/05	11/22/05	0.01	U	
Barium	200.8	1.00	0.12	1	10/22/05	11/2/05	1.57		
Beryllium	200.8	0.0200	0.0006	1	11/19/05	11/22/05	0.0006	U	N
Cadmium	200.8	0.020	0.002	1	11/19/05	11/22/05	0.002	U	
Chromium	200.8	0.20	0.03	1	11/19/05	11/22/05	0.03	U	
Cobalt	200.8	0.020	0.002	1	11/19/05	11/22/05	0.002	U	N
Copper	200.8	0.100	0.005	1	11/19/05	11/22/05	0.005	U	N
Lead	200.8	0.020	0.008	1	11/19/05	11/22/05	0.008	U	N
Nickel	200.8	0.020	0.002	1	11/19/05	11/22/05	0.02	U	
Selenium	7742	1.0	0.3	2	10/26/05	11/22/05	0.3	U	
Silver	200.8	0.020	0.002	1	11/19/05	11/22/05	0.002	U	
Thallium	200.8	0.0200	0.0005	1	11/19/05	11/22/05	0.0005	U	N
Vanadium	6010B	20.0	7.0	1	10/26/05	11/2/05	7.0	U	
Zinc	200.8	0.50	0.02	1	11/19/05	11/22/05	0.02	U	

% Solids: 0.0

Comments:

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Moffett Air Field, Site 1, CTO 86

**Collection Date:** October 6, 2005

**LDC Report Date:** November 17, 2005

**Matrix:** Water

**Parameters:** Volatiles

**Validation Level:** EPA Level III & IV

**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 05J053

### Sample Identification

86-S1-139  
86-S1-131  
86-S1-132\*\*  
86-S1-133  
86-S1-134\*\*  
86-S1-135  
86-S1-136  
86-S1-138  
86-S1-126  
86-S1-128  
86-S1-129  
86-S1-130  
86-S1-128MS  
86-S1-128MSD

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 14 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

All samples were received in good condition with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
86-S1-132** 86-S1-133 86-S1-126 86-S1-128	All TCL compounds	Air bubbles were apparent in the sample containers.	There should be no air bubbles in the sample containers.	J (all detects) UJ (all non-detects)	A

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 15.0% for each individual compound and less than or equal to 30.0% for calibration check compounds (CCCs).

In the case where %RSD was greater than 15.0%, the laboratory used a calibration curve to evaluate the compound. All coefficients of determination ( $r^2$ ) were greater than or equal to 0.990 .

For the purposes of technical evaluation, all compounds were evaluated against the 30.0% (%RSD) National Functional Guideline criteria. Unless noted above, all compounds were within the validation criteria.

Average relative response factors (RRF) for all volatile target compounds were within method and validation criteria with the following exceptions:

Date	Compound	RRF (Limits)	Associated Samples	Flag	A or P
9/21/05	Acetone 2-Butanone	0.043 ( $\geq 0.05$ ) 0.040 ( $\geq 0.05$ )	86-S1-136 ✓ 86-S1-138 ✓ 86-S1-128 ✓ 86-S1-128 ✓ 86-S1-129 ✓ 86-S1-130 ✓ 86-S1-128MS 86-S1-128MSD MBLK1W	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A

#### IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were within the method criteria of less than or equal to 20.0% for calibration check compounds (CCCs).

For the purposes of technical evaluation, all compounds were evaluated against the 25.0% (%D) National Functional Guideline criteria. Unless noted above, all compounds were within the validation criteria with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
10/19/05	Chloroethane Trichlorofluoromethane Carbon disulfide 2,2-Dichloropropane n-Butylbenzene Hexachlorobutadiene	27.1 41.9 26.3 42.6 25.6 28.0	86-S1-139 ✓ 86-S1-131 ✓ 86-S1-132** ✓ 86-S1-133 ✓ 86-S1-134** ✓ 86-S1-135 ✓ MBLK2W	J (all detects) UJ (all non-detects)	A

Initial calibration verification (ICV) percent differences (%D) were less than or equal to 25.0% for all compounds.

All of the continuing calibration RRF values were within method and validation criteria with the following exceptions:

Date	Compound	RRF (Limits)	Associated Samples	Flag	A or P
10/16/05	Acetone  2-Butanone	0.035 ( $\geq 0.05$ )  0.044 ( $\geq 0.05$ )	86-S1-136 ✓ 86-S1-138 ✓ 86-S1-126 ✓ 86-S1-128 ✓ 86-S1-129 ✓ 86-S1-130 ✓ 86-S1-128MS 86-S1-128MSD MBLK1W	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks.

## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## IX. Regional Quality Assurance and Quality Control

Not applicable.

## X. Internal Standards

All internal standard areas and retention times were within QC limits.

## XI. Target Compound Identifications

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XII. Compound Quantitation and CRQLs**

All compound quantitation and CRQLs were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XIII. Tentatively Identified Compounds (TICs)**

Tentatively identified compounds were not reported by the laboratory.

## **XIV. System Performance**

The system performance was within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XV. Overall Assessment**

Data flags are summarized at the end of this report if data has been qualified.

## **XVI. Field Duplicates**

Samples 86-S1-131 and 86-S1-132\*\* and samples 86-S1-133 and 86-S1-134\*\* were identified as field duplicates. No volatiles were detected in any of the samples.

## **XVII. Field Blanks**

Samples 86-S1-139 and 86-S1-138 were identified as trip blanks. No volatile contaminants were found in these blanks.

**Moffett Air Field, Site 1, CTO 86**  
**Volatiles - Data Qualification Summary - SDG 05J053**

SDG	Sample	Compound	Flag	A or P	Reason
04J053	86-S1-132** 86-S1-133 86-S1-126 86-S1-128	All TCL compounds	J (all detects) UJ (all non-detects)	A	Sample condition
04J053	86-S1-136 86-S1-138 86-S1-126 86-S1-128 86-S1-129 86-S1-130	Acetone  2-Butanone	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Initial calibration (RRF)
04J053	86-S1-139 86-S1-131 86-S1-132** 86-S1-133 86-S1-134** 86-S1-135	Chloroethane Trichlorofluoromethane Carbon disulfide 2,2-Dichloropropane n-Butylbenzene Hexachlorobutadiene	J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
04J053	86-S1-136 86-S1-138 86-S1-126 86-S1-128 86-S1-129 86-S1-130	Acetone  2-Butanone	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Continuing calibration (RRF)

**Moffett Air Field, Site 1, CTO 86**  
**Volatiles - Laboratory Blank Data Qualification Summary - SDG 05J053**

No Sample Data Qualified in this SDG



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Air Field, Site 1, CTO 86

**Collection Date:** October 6, 2005

**LDC Report Date:** November 17, 2005

**Matrix:** Water

**Parameters:** Semivolatiles

**Validation Level:** EPA Level III & IV

**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 05J053

**Sample Identification**

86-S1-131  
86-S1-132\*\*  
86-S1-133  
86-S1-134\*\*  
86-S1-135  
86-S1-136  
86-S1-126  
86-S1-128  
86-S1-129  
86-S1-130  
86-S1-130RE  
86-S1-128MS  
86-S1-128MSD

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 13 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270C for Semivolatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## **III. Initial Calibration**

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 15.0% for each individual compound and less than or equal to 30.0% for calibration check compounds (CCCs).

In the case where %RSD was greater than 15.0%, the laboratory used a calibration curve to evaluate the compound. All coefficients of determination ( $r^2$ ) were greater than or equal to 0.990 .

For the purposes of technical evaluation, all compounds were evaluated against the 30.0% (%RSD) National Functional Guideline criteria. Unless noted above, all compounds were within the validation criteria.

Average relative response factors (RRF) for all semivolatile target compounds were within method and validation criteria.

## **IV. Continuing Calibration**

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were within the method criteria of less than or equal to 20.0% for calibration check compounds (CCCs).

For the purposes of technical evaluation, all compounds were evaluated against the 25.0% (%D) National Functional Guideline criteria. Unless noted above, all compounds were within the validation criteria with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
10/14/05	Bis(2-chloroisopropyl)ether 2,4-Dinitrophenol 4-Nitrophenol Benzo(k)fluoranthene	34.9 33.8 25.5 33.6	86-S1-131 ✓ 86-S1-132** ✓ 86-S1-133 ✓ 86-S1-134** ✓ 86-S1-135 ✓ 86-S1-136 ✓ 86-S1-126 ✓ 86-S1-128 ✓ 86-S1-129 ✓ 86-S1-130 ✓ 86-S1-128MS 86-S1-128MSD MBLK1W	J (all detects) UJ (all non-detects)	A
10/17/05	Bis(2-chloroisopropyl)ether  Benzo(k)fluoranthene	33.1  27.5	86-S1-130RE	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A

All of the continuing calibration RRF values were within method and validation criteria.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No semivolatile contaminants were found in the method blanks.

## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## IX. Regional Quality Assurance and Quality Control

Not applicable.

## X. Internal Standards

All internal standard areas and retention times were within QC limits with the following exceptions:

Sample	Internal Standards	Area (Limits)	Compound	Flag	A or P
86-S1-130RE	Perylene-d12	145405 (182354-729416)	Di-n-octylphthalate Benzo(b)fluoranthene Benzo(k)fluoranthene Benzo(a)pyrene Indeno(1,2,3-cd)pyrene Dibenz(a,h)anthracene Benzo(g,h,i)perylene	J (all detects) UJ (all non-detects)	A

## XI. Target Compound Identifications

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

## XIV. System Performance

The system performance was within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## XV. Overall Assessment

Data flags are summarized at the end of this report if data has been qualified.

## XVI. Field Duplicates

Samples 86-S1-131 and 86-S1-132\*\* and samples 86-S1-133 and 86-S1-134\*\* were identified as field duplicates. No semivolatiles were detected in any of the samples.

## **XVII. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Air Field, Site 1, CTO 86**  
**Semivolatiles - Data Qualification Summary - SDG 05J053**

SDG	Sample	Compound	Flag	A or P	Reason
04J053	86-S1-131 86-S1-132** 86-S1-133 86-S1-134** 86-S1-135 86-S1-136 86-S1-126 86-S1-128 86-S1-129 86-S1-130	Bis(2-chloroisopropyl)ether 2,4-Dinitrophenol 4-Nitrophenol Benzo(k)fluoranthene	J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
04J053	86-S1-130RE	Bis(2-chloroisopropyl)ether  Benzo(k)fluoranthene	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
04J053	86-S1-130RE	Di-n-octylphthalate Benzo(b)fluoranthene Benzo(k)fluoranthene Benzo(a)pyrene Indeno(1,2,3-cd)pyrene Dibenz(a,h)anthracene Benzo(g,h,i)perylene	J (all detects) UJ (all non-detects)	A	Internal standards (area)

**Moffett Air Field, Site 1, CTO 86**  
**Semivolatiles - Laboratory Blank Data Qualification Summary - SDG 05J053**

No Sample Data Qualified in this SDG

## **Laboratory Data Consultants, Inc. Data Validation Report**

**Project/Site Name:** Moffett Airfield, Site 1, CTO 86

**Collection Date:** October 6, 2005

**LDC Report Date:** November 17, 2005

**Matrix:** Water

**Parameters:** Chlorinated Pesticides

**Validation Level:** EPA Level III & IV

**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 05J053

### **Sample Identification**

86-S1-131

86-S1-132\*\*

86-S1-133

86-S1-134\*\*

86-S1-135

86-S1-136

86-S1-126

86-S1-128

86-S1-129

86-S1-130

86-S1-128MS

86-S1-128MSD

\*\*Indicates sample underwent EPA Level IV review.



## Introduction

This data review covers 12 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8081A for Chlorinated Pesticides.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XIV.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/ECD Instrument Performance Check**

Instrument performance was acceptable unless noted otherwise under initial calibration and continuing calibration sections.

## **III. Initial Calibration**

Initial calibration of single and multicomponent compounds was performed for the primary (quantitation) column and confirmation column as required by this method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

Retention time windows were evaluated and considered technically acceptable for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples on which a Level III review was performed.

## **IV. Continuing Calibration**

Continuing calibration was performed at required frequencies.

The percent differences (%D) of calibration factors in continuing standard mixtures were within the 15.0% QC limits.

Initial calibration verification (ICV) percent differences (%D) were less than or equal to 20.0% for all compounds.

Retention time windows were evaluated and considered technically acceptable for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples on which a Level III review was performed.

The individual 4,4'-DDT and Endrin breakdowns were less than 15.0% .

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No chlorinated pesticide contaminants were found in the method blanks.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Pesticide Cleanup Checks**

### **a. Florisil Cartridge Check**

Florisil cleanup was not required and therefore not performed in this SDG.

### **b. GPC Calibration**

GPC cleanup was not required and therefore not performed in this SDG.

## **XI. Target Compound Identification**

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XII. Compound Quantitation and Reported CRQLs**

All compound quantitation and CRQLs were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XIII. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

#### **XIV. Field Duplicates**

Samples 86-S1-131 and 86-S1-132\*\* and samples 86-S1-133 and 86-S1-134\*\* were identified as field duplicates. No chlorinated pesticides were detected in any of the samples.

#### **XV. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Airfield, Site 1, CTO 86**  
**Chlorinated Pesticides - Data Qualification Summary - SDG 05J053**

No Sample Data Qualified in this SDG

**Moffett Airfield, Site 1, CTO 86**  
**Chlorinated Pesticides - Laboratory Blank Data Qualification Summary - SDG 05J053**

No Sample Data Qualified in this SDG

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Moffett Airfield, Site 1, CTO 86

**Collection Date:** October 6, 2005

**LDC Report Date:** November 17, 2005

**Matrix:** Water

**Parameters:** Polychlorinated Biphenyls

**Validation Level:** EPA Level III & IV

**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 05J053

### Sample Identification

86-S1-131  
86-S1-132\*\*  
86-S1-133  
86-S1-134\*\*  
86-S1-135  
86-S1-136  
86-S1-126  
86-S1-128  
86-S1-129  
86-S1-130  
86-S1-128MS  
86-S1-128MSD

\*\*Indicates sample underwent EPA Level IV review.

## Introduction

This data review covers 12 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8082 for Polychlorinated Biphenyls.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XIV.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/ECD Instrument Performance Check**

Instrument performance data were not provided and therefore not reviewed.

## **III. Initial Calibration**

Initial calibration of multicomponent compounds was performed for the primary (quantitation) column as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

Retention time windows were evaluated and considered technically acceptable for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples on which a Level III review was performed.

## **IV. Continuing Calibration**

Continuing calibration was performed at required frequencies.

The percent differences (%D) of calibration factors in continuing standard mixtures were within the 15.0% QC limits.

Initial calibration verification (ICV) percent differences (%D) were less than or equal to 20.0% for all compounds.

Retention time windows were evaluated and considered technically acceptable for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples on which a Level III review was performed.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No polychlorinated biphenyl contaminants were found in the method blanks.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.



## **VII. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Pesticide Cleanup Checks**

### **a. Florisil Cartridge Check**

Florisil cleanup was not required and therefore not performed in this SDG.

### **b. GPC Calibration**

GPC cleanup was not required and therefore not performed in this SDG.

## **XI. Target Compound Identification**

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XII. Compound Quantitation and Reported CRQLs**

All compound quantitation and CRQLs were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XIII. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

## **XIV. Field Duplicates**

Samples 86-S1-131 and 86-S1-132\*\* and samples 86-S1-133 and 86-S1-134\*\* were identified as field duplicates. No polychlorinated biphenyls were detected in any of the samples.

## **XV. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Airfield, Site 1, CTO 86**

**Polychlorinated Biphenyls - Data Qualification Summary - SDG 05J053**

No Sample Data Qualified in this SDG

**Moffett Airfield, Site 1, CTO 86**

**Polychlorinated Biphenyls - Laboratory Blank Data Qualification Summary - SDG 05J053**

No Sample Data Qualified in this SDG

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Moffett Air Field, Site 1, CTO 86

**Collection Date:** November 6, 2005

**LDC Report Date:** November 14, 2005

**Matrix:** Water

**Parameters:** Dissolved Mercury

**Validation Level:** EPA Level III & IV

**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 05J053

### Sample Identification

86-S1-131  
86-S1-132\*\*  
86-S1-133  
86-S1-134\*\*  
86-S1-135  
86-S1-136  
86-S1-126  
86-S1-128  
86-S1-129  
86-S1-130  
86-S1-128MS  
86-S1-128MSD

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 12 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 7470A for Dissolved Mercury.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (October 2004) as there are no current guidelines for the methods stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

## III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the initial, continuing and preparation blanks.

## IV. ICP Interference Check Sample (ICS) Analysis

ICP was not utilized in this SDG.

## V. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
86-S1-128MS/MSD (All samples in SDG 05J053)	Dissolved mercury	-	67 (75-125)	-	J (all detects) UJ (all non-detects)	A

## VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable.

## VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Internal Standards

ICP-MS was not utilized in this SDG.

## **IX. Furnace Atomic Absorption QC**

Graphite furnace atomic absorption was not utilized in this SDG.

## **X. ICP Serial Dilution**

ICP serial dilution was not performed for this SDG.

## **XI. Sample Result Verification**

All sample result verifications were acceptable for samples on which a NFESC Level IV review was performed. Raw data were not evaluated for samples reviewed by Level III criteria.

## **XII. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

## **XIII. Field Duplicates**

Samples 86-S1-131 and 86-S1-132\*\* and samples 86-S1-133 and 86-S1-134\*\* were identified as field duplicates. No metals were detected in any of the samples.

## **XIV. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Air Field, Site 1, CTO 86**  
**Dissolved Mercury - Data Qualification Summary - SDG 05J053**

SDG	Sample	Analyte	Flag	A or P	Reason
05J053	86-S1-131 86-S1-132** 86-S1-133 86-S1-134** 86-S1-135 86-S1-136 86-S1-126 86-S1-128 86-S1-129 86-S1-130	Dissolved mercury	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicates (%R)

**Moffett Air Field, Site 1, CTO 86**  
**Dissolved Mercury - Laboratory Blank Data Qualification Summary - SDG 05J053**

No Sample Data Qualified in this SDG



**Laboratory Data Consultants, Inc.**  
**Data Validation Report**

**Project/Site Name:** Moffett Air Field, Site 1, CTO 86  
**Collection Date:** October 4 through October 6, 2005  
**LDC Report Date:** December 5, 2005  
**Matrix:** Water  
**Parameters:** Dissolved Metals  
**Validation Level:** EPA Level III & IV  
**Laboratory:** Columbia Analytical Services, Inc.

**Sample Delivery Group (SDG):** K0504756

**Sample Identification**

86-S1-124  
86-S1-125  
86-S1-131  
86-S1-132\*\*  
86-S1-133  
86-S1-134\*\*  
86-S1-135  
86-S1-136  
86-S1-126  
86-S1-128  
86-S1-129  
86-S1-130  
86-S1-124MS  
86-S1-124DUP  
86-S1-128MS  
86-S1-128DUP

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 16 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Methods 6010B and 7742, and EPA Method 200.8 for Dissolved Metals. The metals analyzed were Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Lead, Nickel, Selenium, Silver, Thallium, Vanadium, and Zinc.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (October 2004) as there are no current guidelines for the methods stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met with the following exceptions:

Date	Lab. Reference/ID	Analyte	%R (Limits)	Associated Samples	Flag	A or P
10/22/05	CCV2	Beryllium	113 (90-110)	PB	J (all detects)	P

## III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the initial, continuing and preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Barium	1.57 ug/L	All samples in SDG K0504756
ICB/CCB	Antimony Arsenic Beryllium Selenium Thallium	0.029 ug/L 0.011 ug/L 0.0221 ug/L 0.3 ug/L 0.08 ug/L	All samples in SDG K0504756

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
86-S1-124	Antimony Beryllium (0.11X) Thallium (0.11X)	0.376 ug/L 0.0073 ug/L 0.0403 ug/L	0.376U ug/L 0.0073U ug/L 0.0403U ug/L

Sample	Analyte	Reported Concentration	Modified Final Concentration
86-S1-125	Antimony Beryllium (0.11x)	0.200 ug/L 0.0108 ug/L	0.200U ug/L 0.0108U ug/L
86-S1-131	Antimony Beryllium (0.11x) Thallium (0.11x)	0.244 ug/L 0.0042 ug/L 0.0014 ug/L	0.244U ug/L 0.0042U ug/L 0.0014U ug/L
86-S1-132**	Antimony Beryllium (0.11x) Thallium (0.11x)	0.236 ug/L 0.0046 ug/L 0.0011 ug/L	0.236U ug/L 0.0046U ug/L 0.0011U ug/L
86-S1-133	Beryllium (0.21x)	0.0072 ug/L	0.0072U ug/L
86-S1-134**	Beryllium (0.22x)	0.0079 ug/L	0.0079U ug/L
86-S1-135	Antimony Beryllium (0.22x)	0.306 ug/L 0.0242 ug/L	0.306U ug/L 0.0242U ug/L
86-S1-136	Beryllium (0.44x)	0.0294 ug/L	0.0294U ug/L
86-S1-126	Beryllium (0.12x) Thallium (0.24x)	0.0065 ug/L 0.0517 ug/L	0.0065U ug/L 0.0517U ug/L
86-S1-128	Beryllium (0.125x) Thallium (0.25x)	0.0102 ug/L 0.0031 ug/L	0.0102U ug/L 0.0031U ug/L
86-S1-129	Beryllium (0.11x) Thallium (0.22x)	0.0054 ug/L 0.0380 ug/L	0.0054U ug/L 0.0380U ug/L
86-S1-130	Antimony	0.484 ug/L	0.484U ug/L

#### IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

#### V. Matrix Spike Analysis

Matrix spike (MS) samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## VIII. Internal Standards

All internal standard percent recoveries (%R) were within QC limits with the following exceptions:

Date	Sample	Internal Standard	%R (Limits)	Analyte	Flag	A or P
11/2/05	86-S1-132**	Indium <sup>115</sup> Lutetium <sup>175</sup>	170.7 (60-125) 149.5 (60-125)	Antimony Barium	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A
11/2/05	86-S1-134**	Indium <sup>115</sup> Lutetium <sup>175</sup>	132.6 (60-125) 149.1 (60-125)	Antimony Barium	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A
11/22/05	86-S1-132**	Scandium <sup>45</sup> Nickel <sup>61</sup> Indium <sup>115</sup> Lutetium <sup>175</sup>	136.1 (60-125) 192.4 (60-125) 157.6 (60-125) 125.8 (60-125)	Arsenic Cadmium Chromium Cobalt Copper Lead Nickel Silver Thallium Zinc	J (all detects) UJ (all non-detects)	A
11/22/05	86-S1-134**	Nickel <sup>61</sup> Indium <sup>115</sup>	188.7 (60-125) 150.8 (60-125)	Nickel Arsenic Cadmium Chromium Cobalt Copper Silver Zinc	J (all detects) UJ (all non-detects)	A
11/22/05	86-S1-132**	Scandium <sup>45</sup>	145.1 (60-125)	Beryllium	J (all detects) UJ (all non-detects)	A
11/22/05	86-S1-134**	Scandium <sup>45</sup>	161.3 (60-125)	Beryllium	J (all detects) UJ (all non-detects)	A

## IX. Furnace Atomic Absorption QC

All graphite furnace atomic absorption QC were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## X. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria were met.

## XI. Sample Result Verification

All sample result verifications were acceptable for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## XII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## XIII. Field Duplicates

Samples 86-S1-131 and 86-S1-132\*\* and samples 86-S1-133 and 86-S1-134\*\* were identified as field duplicates. No metals were detected in any of the samples with the following exceptions:

Analyte	Concentration (mg/Kg)		RPD
	86-S1-131	86-S1-132**	
Antimony	0.244	0.236	3
Arsenic	0.95	1.95	69
Barium	576	556	4
Beryllium	0.0042	0.0046	9
Chromium	0.56	0.59	5
Cobalt	1.730	2.990	53
Copper	0.031	0.060	64
Nickel	4.69	4.80	2
Thallium	0.0014	0.0011	24

Analyte	Concentration (mg/Kg)		RPD
	86-S1-131	86-S1-132**	
Vanadium	9.8	10.3	5
Zinc	1.84	2.25	20

Analyte	Concentration (mg/Kg)		RPD
	86-S1-133	86-S1-134**	
Arsenic	3.86	4.33	11
Barium	150	150	0
Beryllium	0.0072	0.0079	9
Chromium	0.61	0.50	20
Cobalt	2.270	2.280	0
Copper	0.099	0.093	6
Lead	0.017U	0.026	Not calculable
Nickel	5.45	5.46	0
Vanadium	7.3	10.6	37
Zinc	31.3	20.6	41

#### XIV. Field Blanks

No field blanks were identified in this SDG.

**Moffett Air Field, Site 1, CTO 86**
**Dissolved Metals - Data Qualification Summary - SDG K0504756**

SDG	Sample	Analyte	Flag	A or P	Reason
K0504756	86-S1-132**	Antimony Barium Arsenic Cadmium Chromium Cobalt Copper Lead Nickel Silver Thallium Zinc Beryllium	J (all detects) UJ (all non-detects)	A	Internal standards (%R)
K0504756	86-S1-134**	Antimony Barium Nickel Arsenic Cadmium Chromium Cobalt Copper Silver Zinc Beryllium	J (all detects) UJ (all non-detects)	A	Internal standards (%R)

**Moffett Air Field, Site 1, CTO 86**
**Dissolved Metals - Laboratory Blank Data Qualification Summary - SDG K0504756**

SDG	Sample	Analyte	Modified Final Concentration	A or P
K0504756	86-S1-124	Antimony Beryllium (0.11x) Thallium (0.11x)	0.376U ug/L 0.0073U ug/L 0.0403U ug/L	A
K0504756	86-S1-125	Antimony Beryllium (0.11x)	0.200U ug/L 0.0108U ug/L	A
K0504756	86-S1-131	Antimony Beryllium (0.11x) Thallium (0.11x)	0.244U ug/L 0.0042U ug/L 0.0014U ug/L	A
K0504756	86-S1-132**	Antimony Beryllium (0.11x) Thallium (0.11x)	0.236U ug/L 0.0046U ug/L 0.0011U ug/L	A
K0504756	86-S1-133	Beryllium (0.21x)	0.0072U ug/L	A



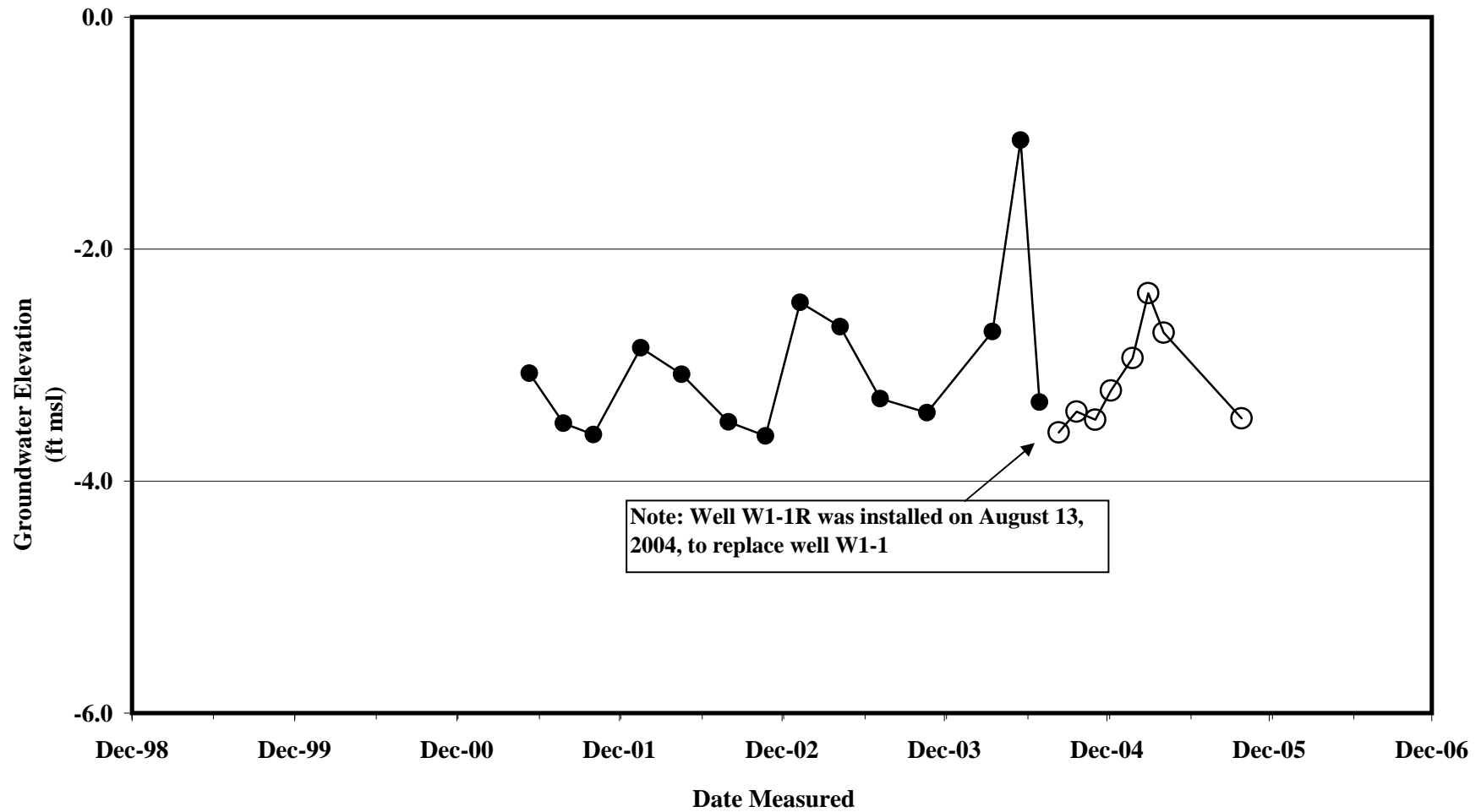
SDG	Sample	Analyte	Modified Final Concentration	A or P
K0504756	86-S1-134**	Beryllium (0.22x)	0.0079U ug/L	A
K0504756	86-S1-135	Antimony Beryllium (0.22x)	0.306U ug/L 0.0242U ug/L	A
K0504756	86-S1-136	Beryllium (0.44x)	0.0294U ug/L	A
K0504756	86-S1-126	Beryllium (0.12x) Thallium (0.24x)	0.0065U ug/L 0.0517U ug/L	A
K0504756	86-S1-128	Beryllium (0.125x) Thallium (0.25x)	0.0102U ug/L 0.0031U ug/L	A
K0504756	86-S1-129	Beryllium (0.11x) Thallium (0.22x)	0.0054U ug/L 0.0360U ug/L	A
K0504756	86-S1-130	Antimony	0.484U ug/L	A

## **APPENDIX D**

### **GROUNDWATER HYDROGRAPHS**

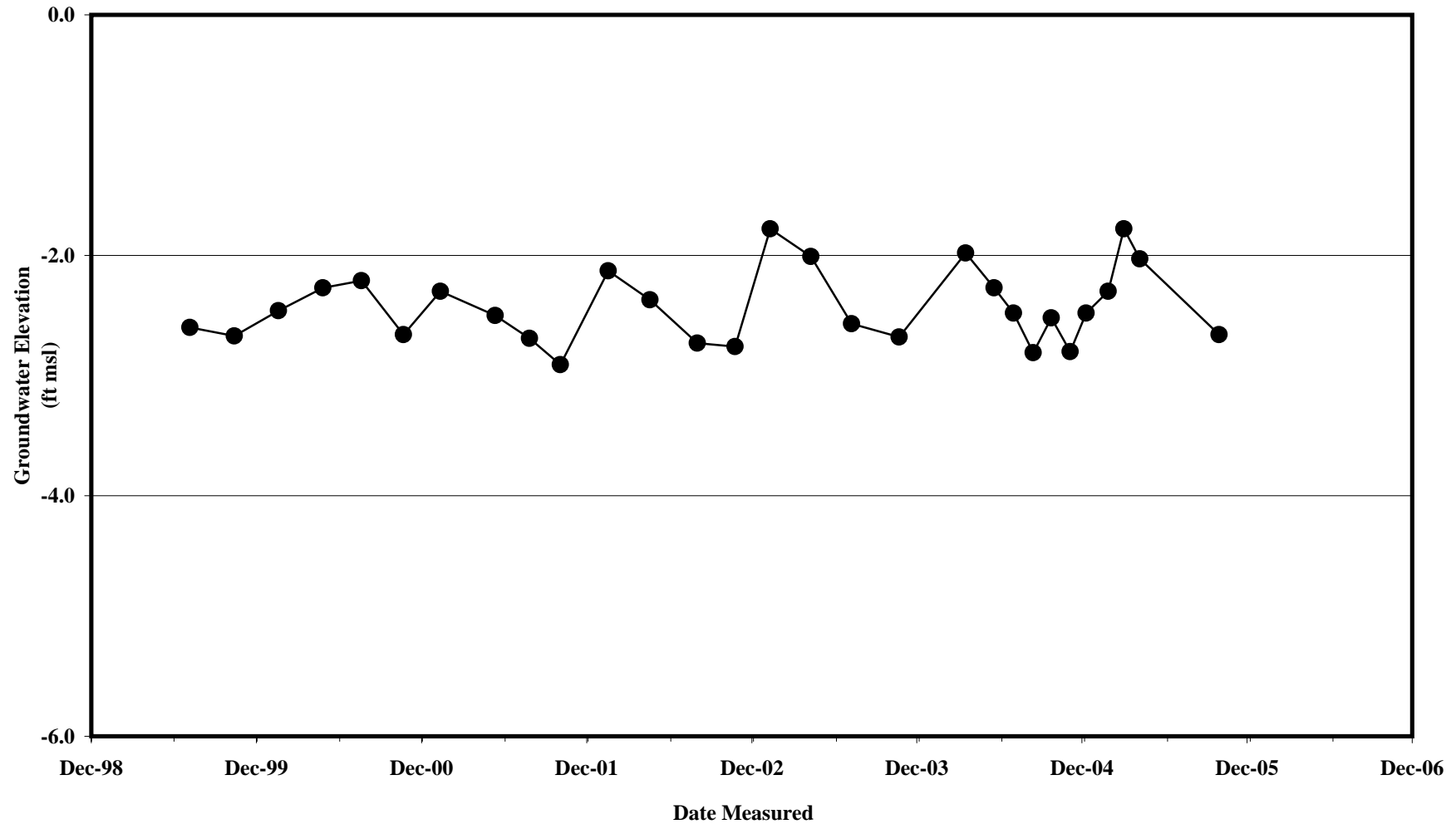
**FIGURE D-1**

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
GROUNDWATER HYDROGRAPHS, WELLS W1-1 AND W1-1R**



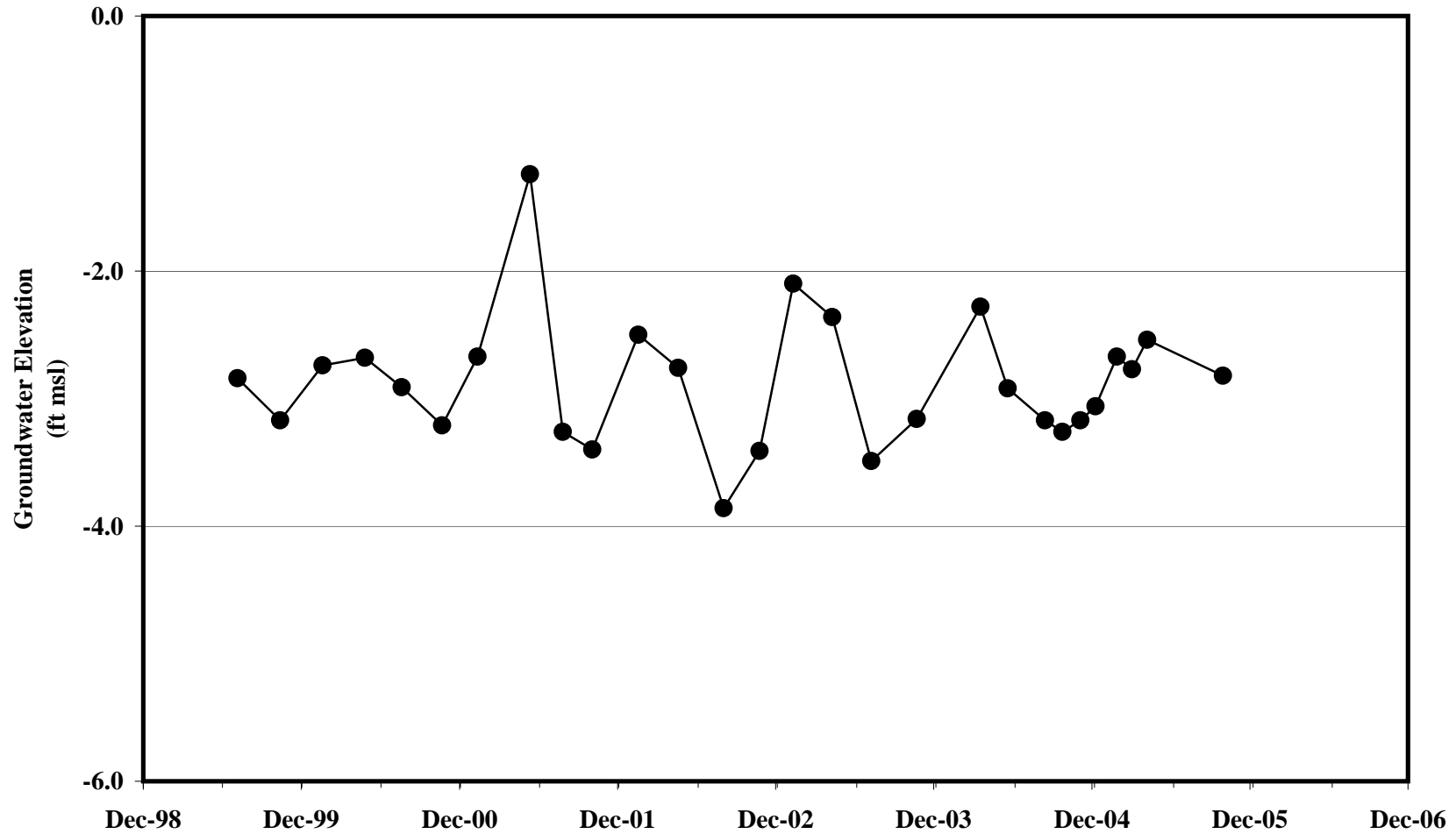
**FIGURE D-2**

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
GROUNDWATER HYDROGRAPH, WELL W1-5**



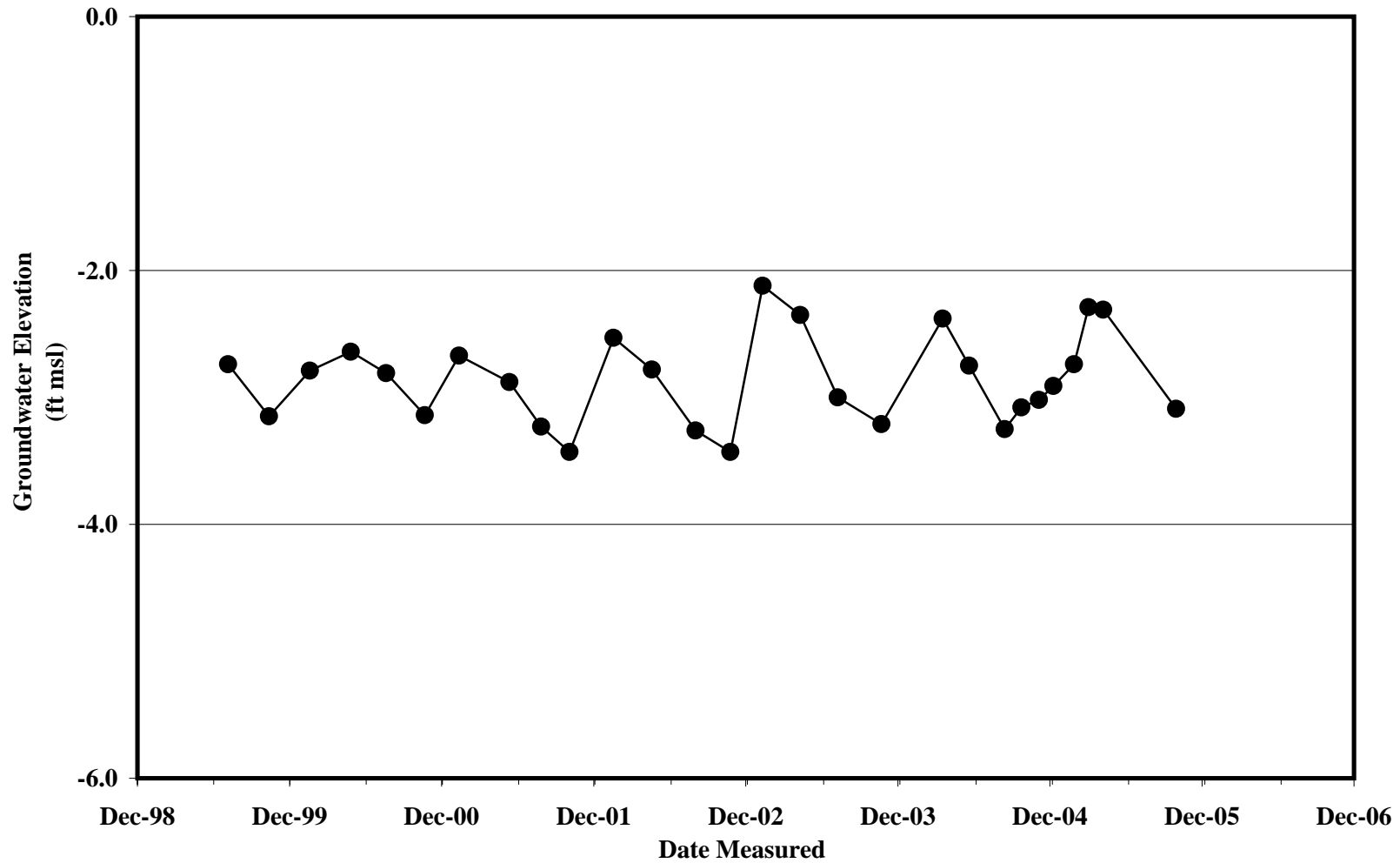
**FIGURE D-3**

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
GROUNDWATER HYDROGRAPH, WELL W1-6**



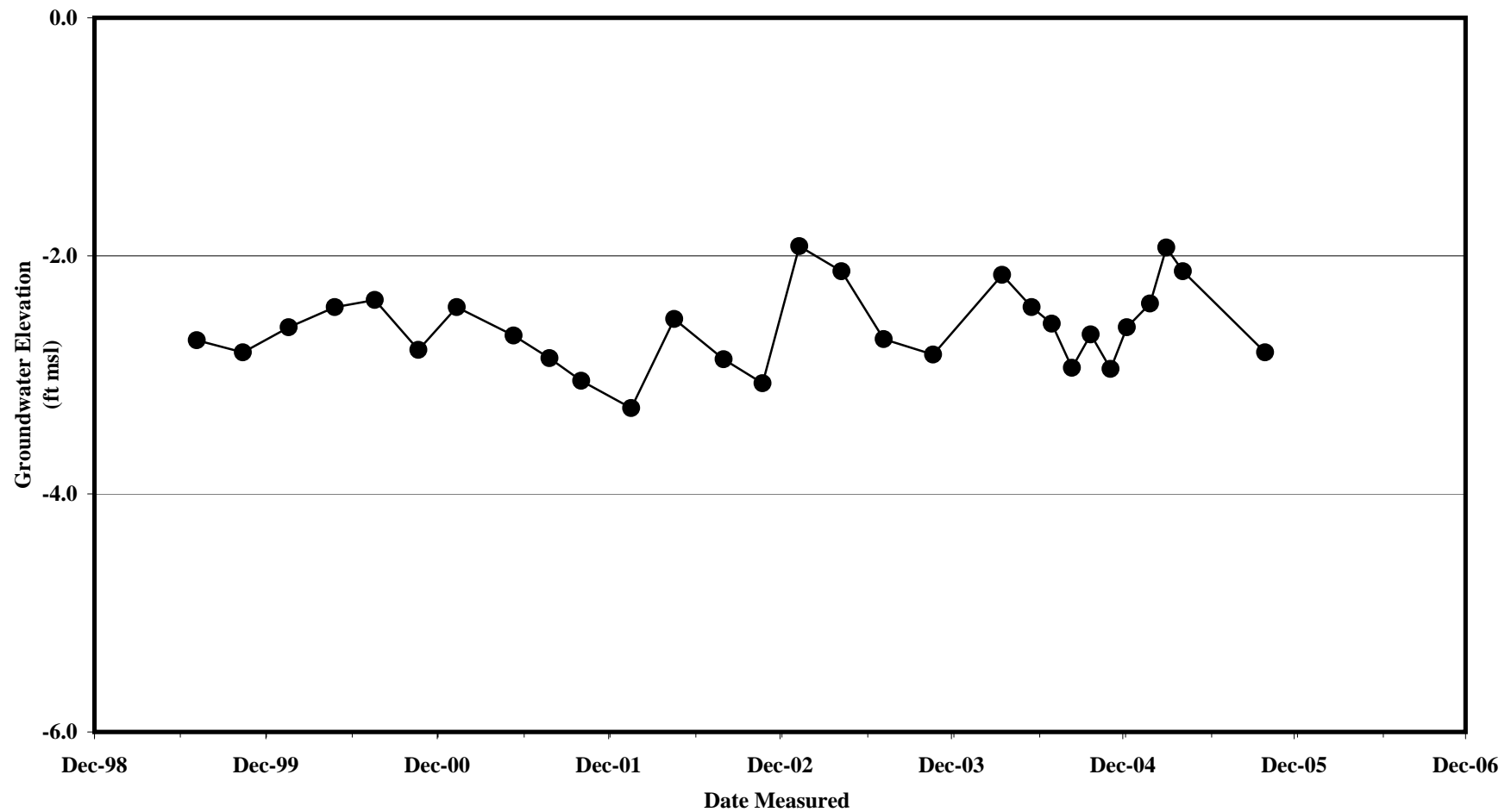
**FIGURE D-4**

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
GROUNDWATER HYDROGRAPH, WELL W1-7**



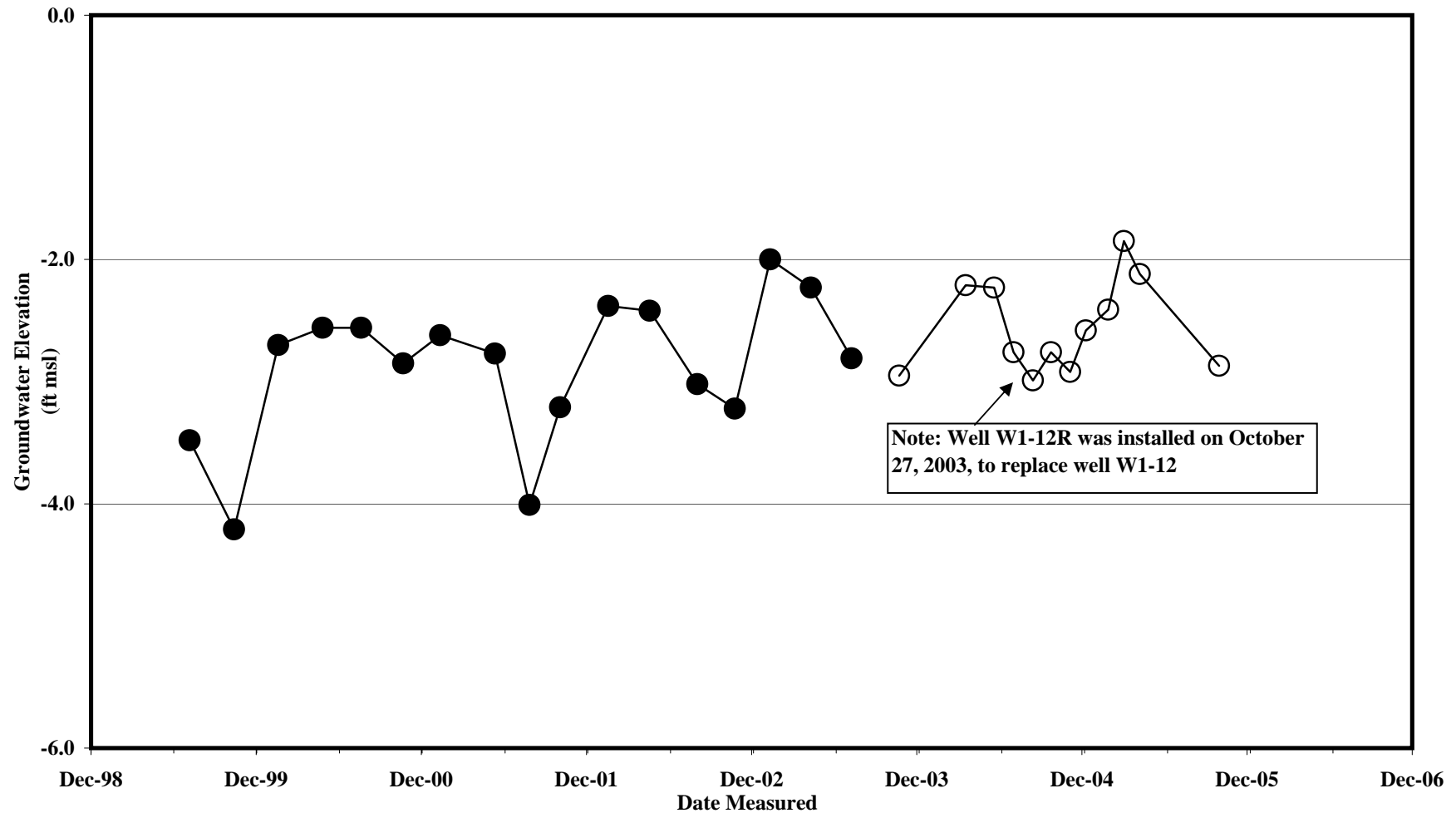
**FIGURE D-5**

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
GROUNDWATER HYDROGRAPH, WELL W1-8**



**FIGURE D-6**

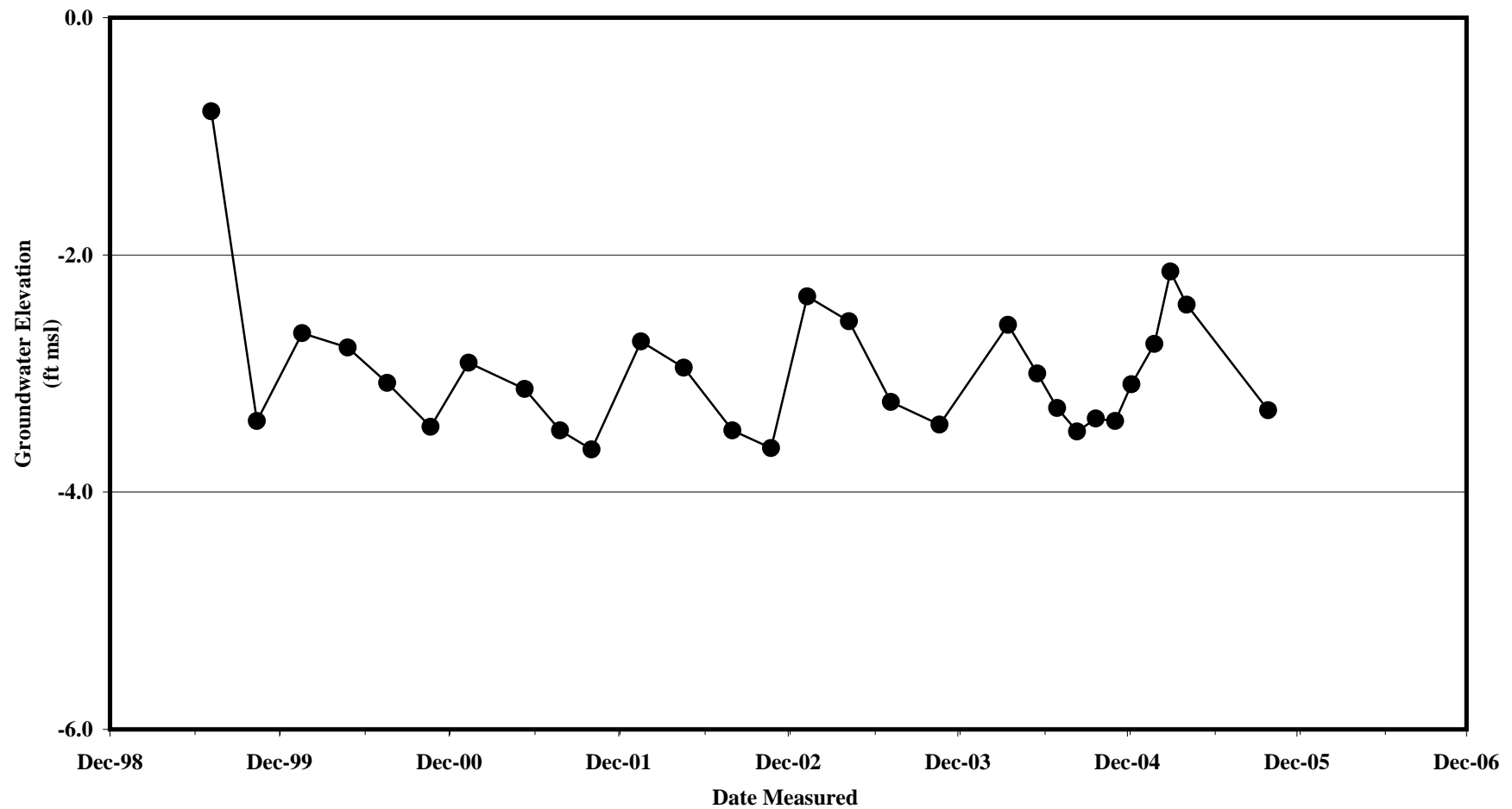
**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
GROUNDWATER HYDROGRAPHS, WELLS W1-12 AND W1-12R**





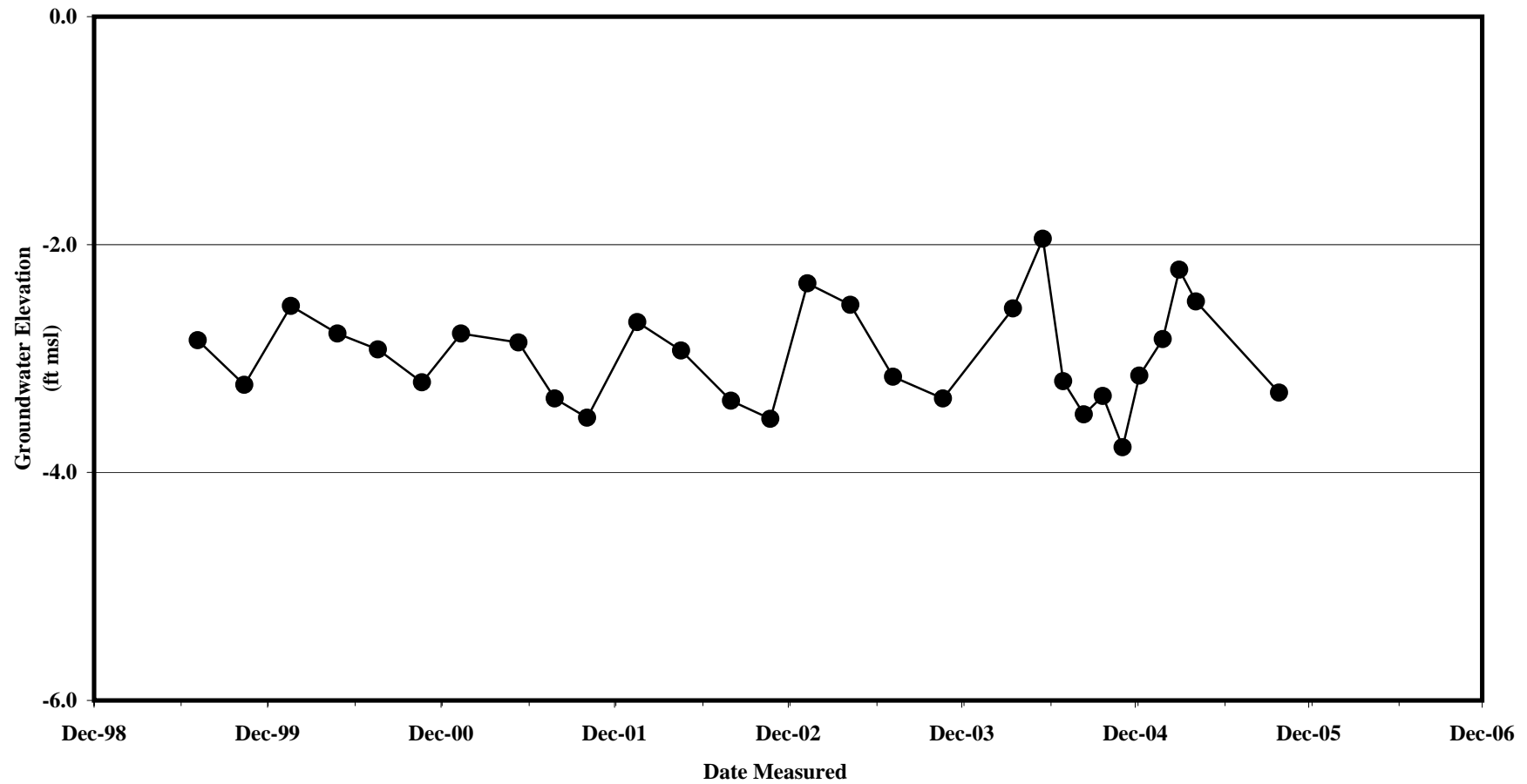
**FIGURE D-7**

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
GROUNDWATER HYDROGRAPH, WELL W1-14**



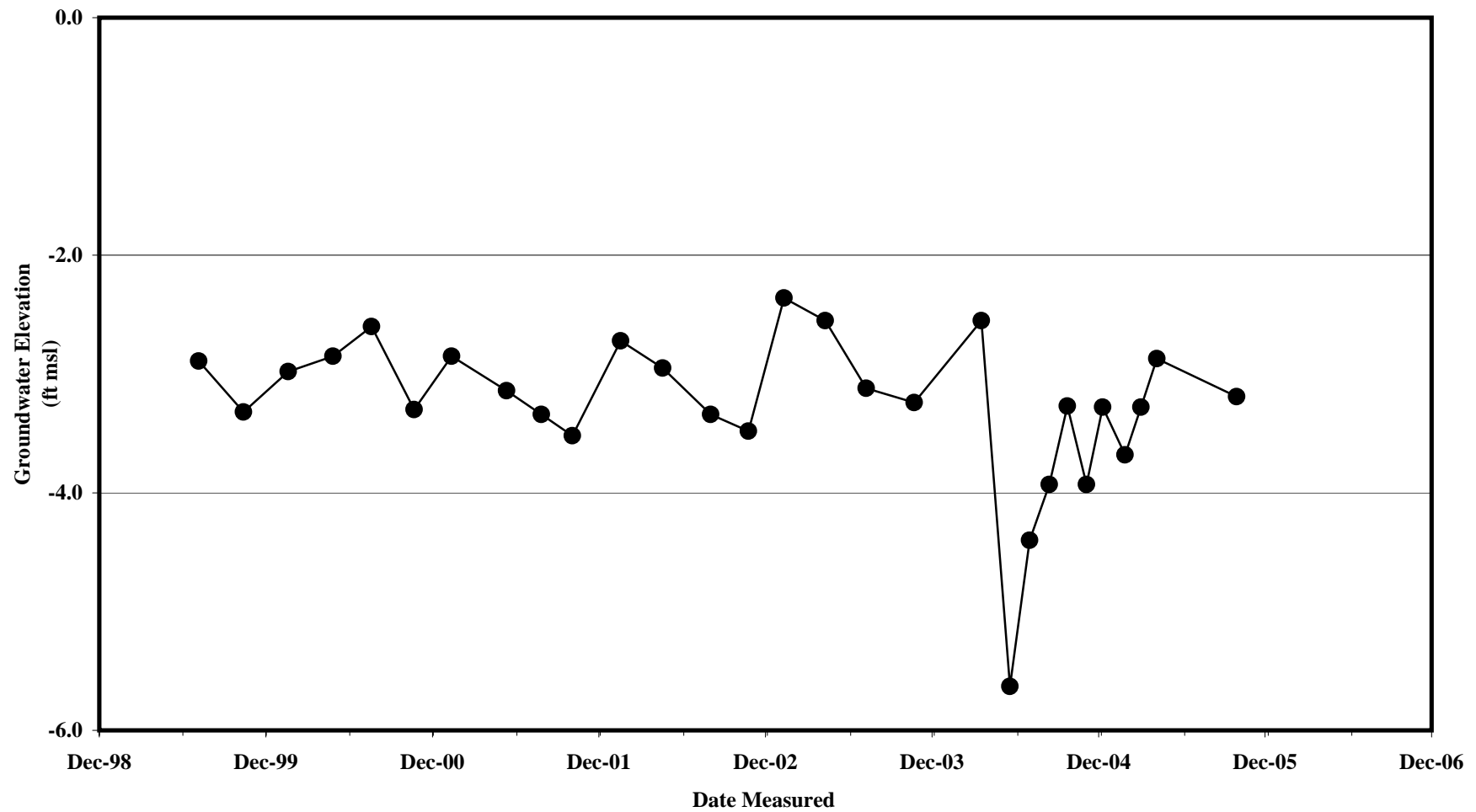
**FIGURE D-8**

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
GROUNDWATER HYDROGRAPH, WELL W1-15**



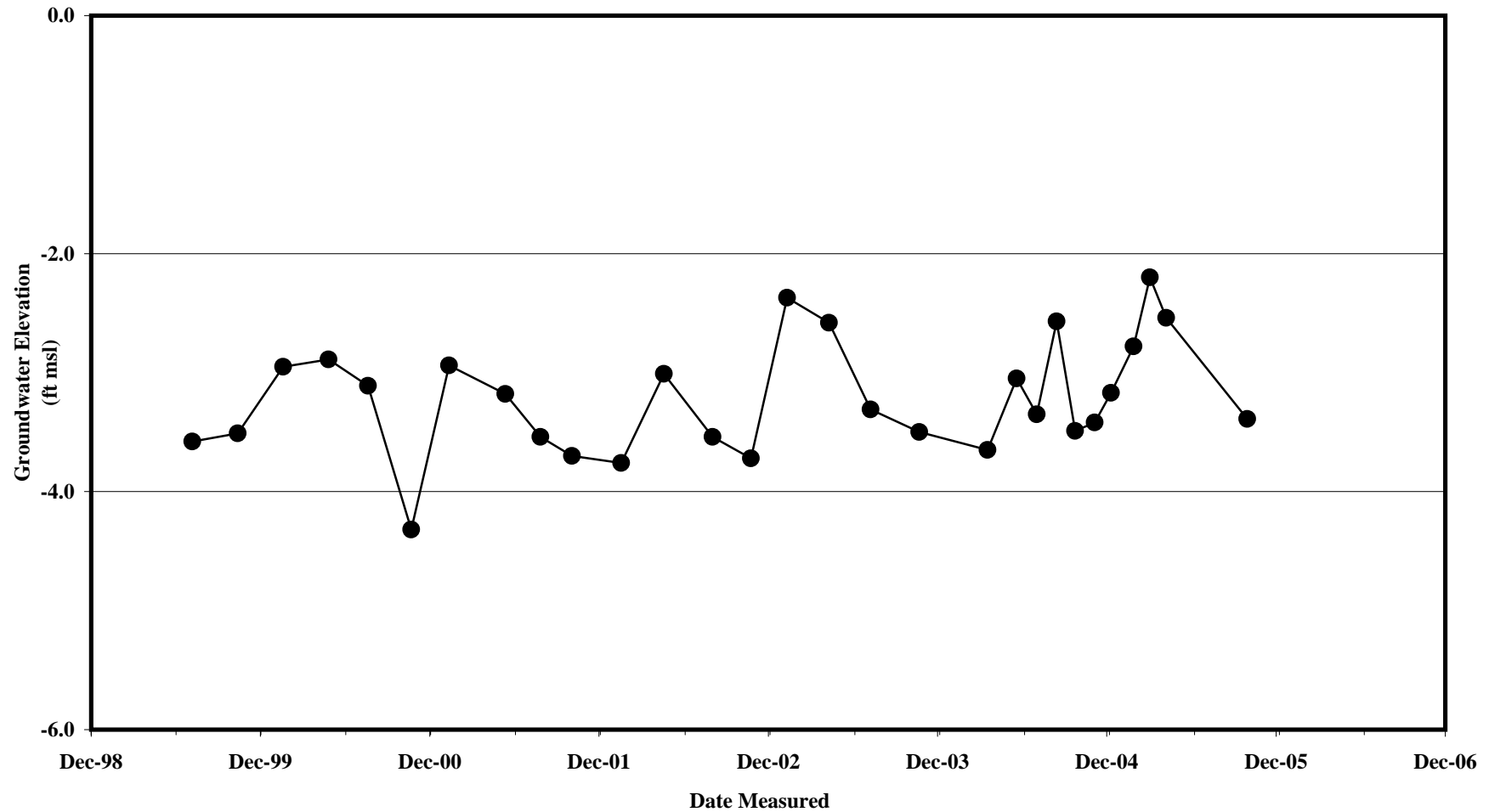
**FIGURE D-9**

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
GROUNDWATER HYDROGRAPH, WELL W1-16**



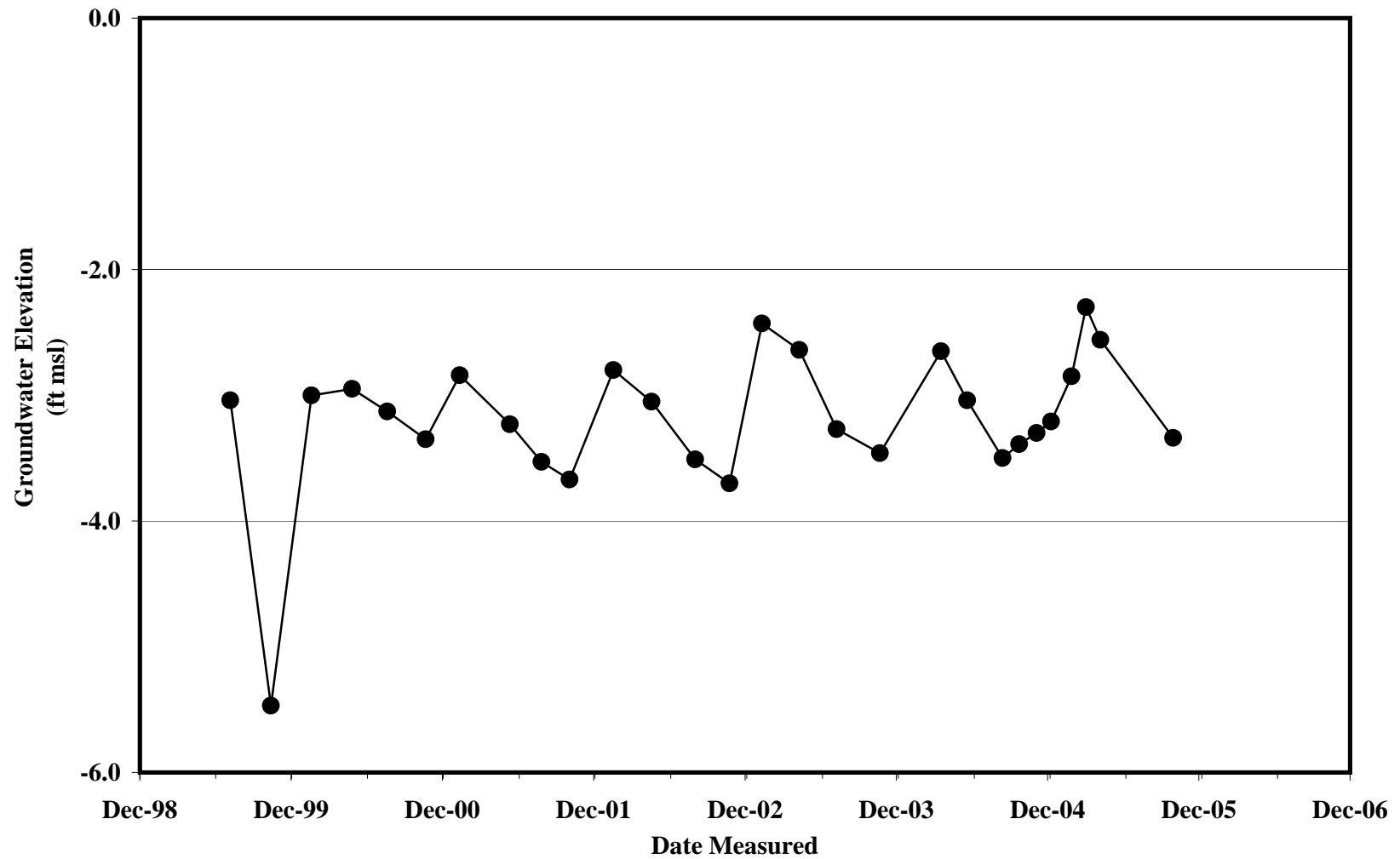
**FIGURE D-10**

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
GROUNDWATER HYDROGRAPH, WELL W1-19**



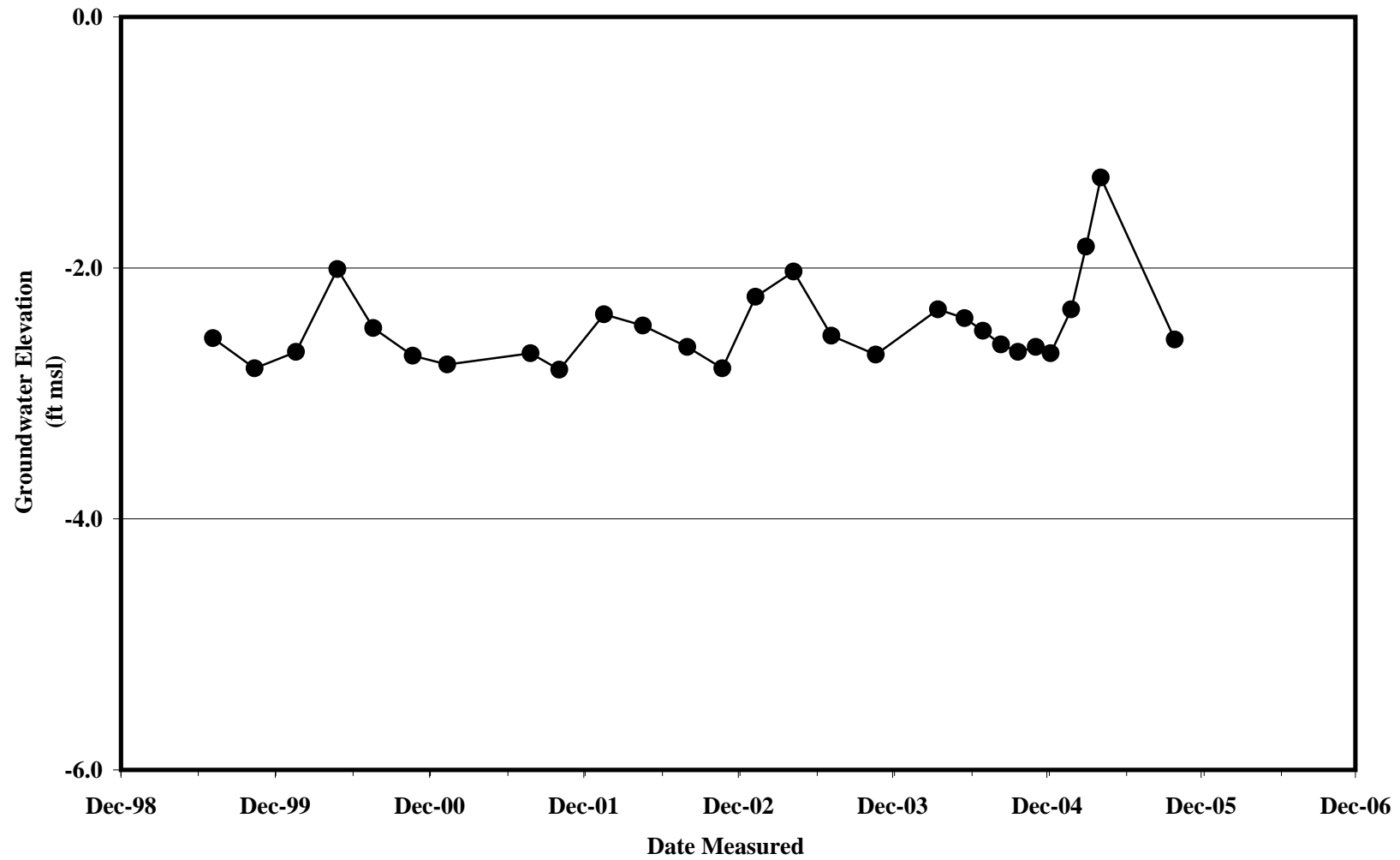
**FIGURE D-11**

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
GROUNDWATER HYDROGRAPH, WELL W1-20**



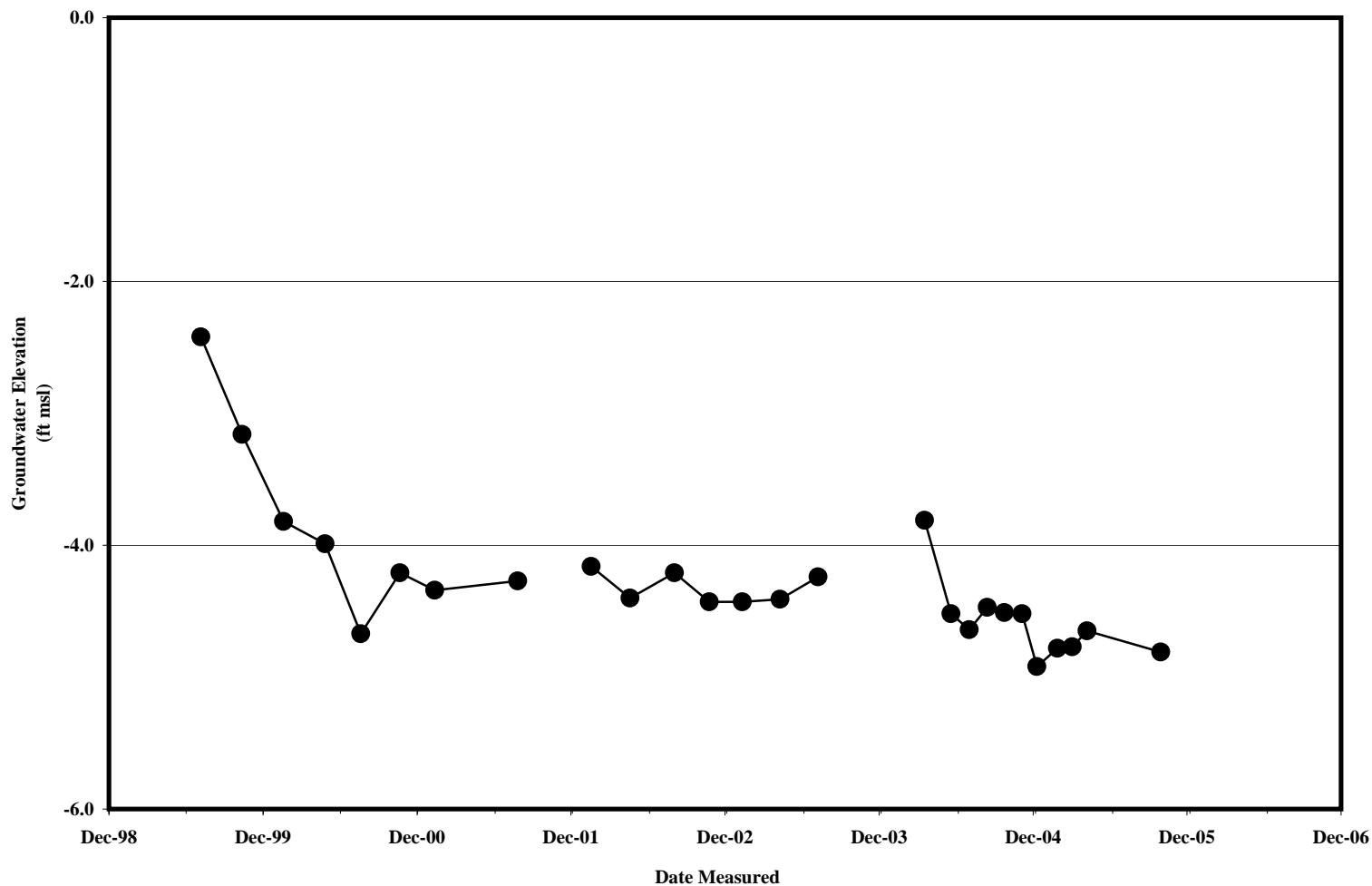
**FIGURE D-12**

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
GROUNDWATER HYDROGRAPH, WELL W1-22**



**FIGURE D-13**

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
GROUNDWATER HYDROGRAPH, WELL W1-23**

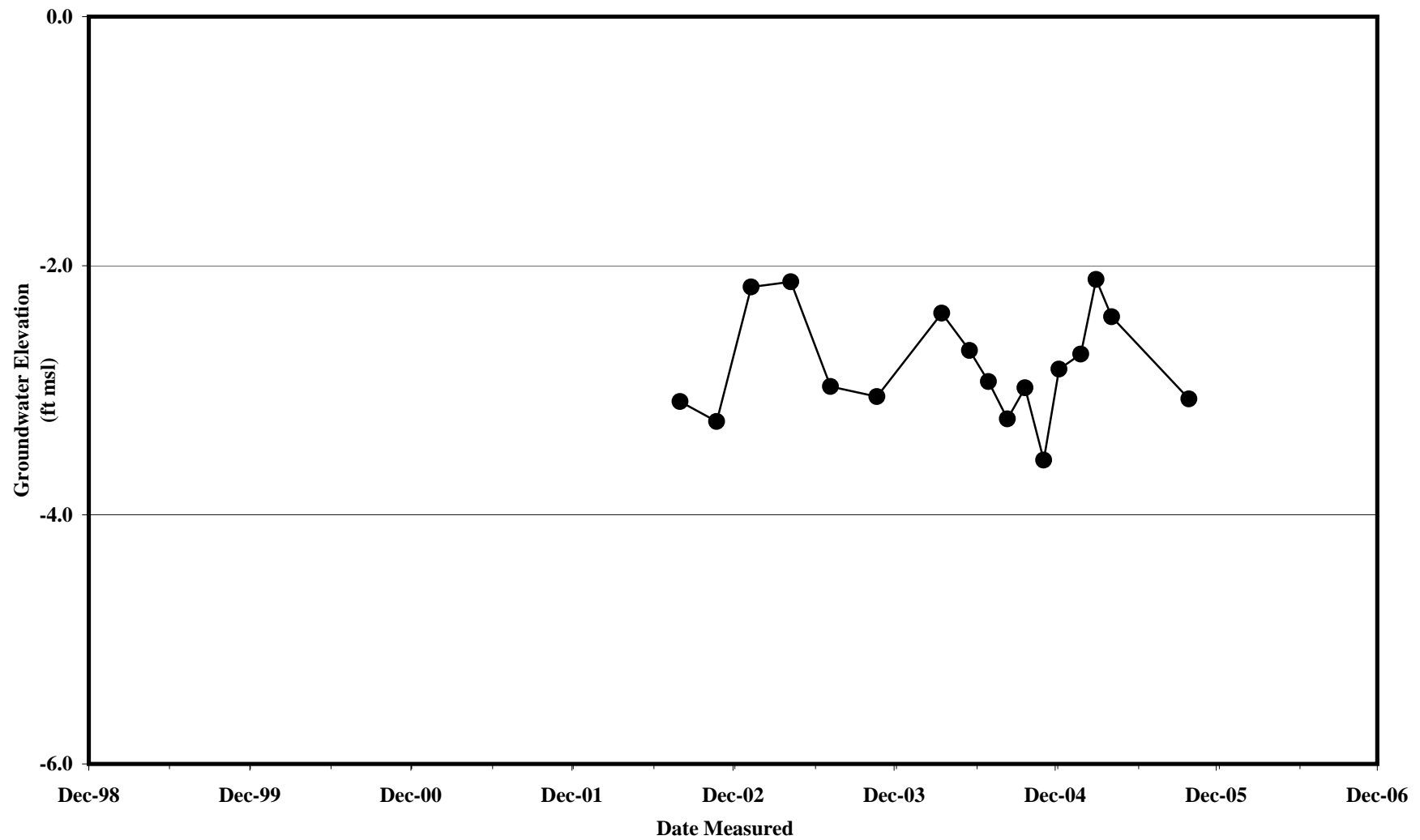


**Notes:**

1. Breaks in hydrograph line indicate that the collection trench was dry during the respective time period.

**FIGURE D-14**

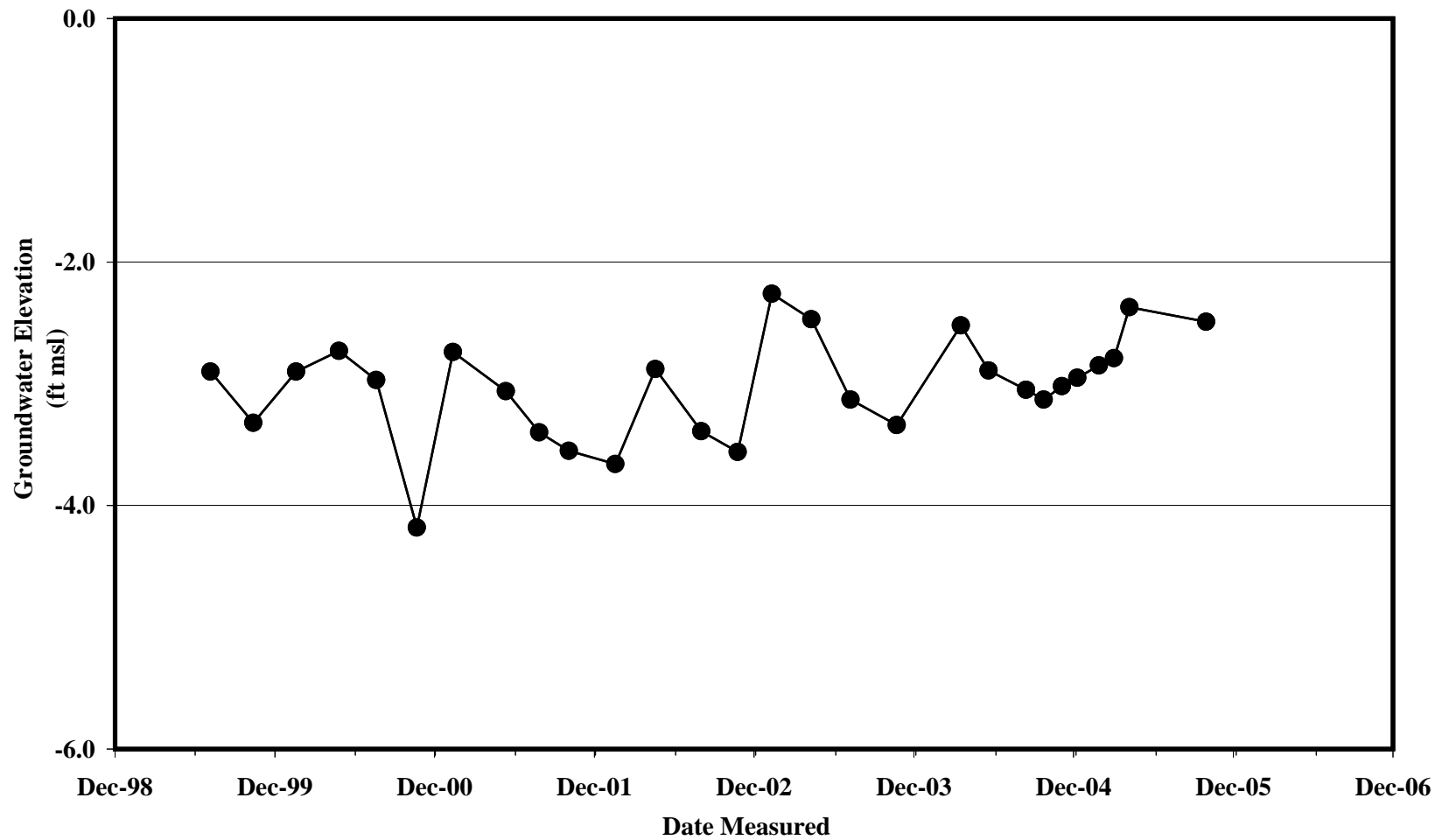
**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
GROUNDWATER HYDROGRAPH, WELL W1-24**





**FIGURE D-15**

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
GROUNDWATER HYDROGRAPH, PIEZOMETER PZ1-18**



**FIGURE D-16**

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
GROUNDWATER HYDROGRAPH, WELL PZ1-21**

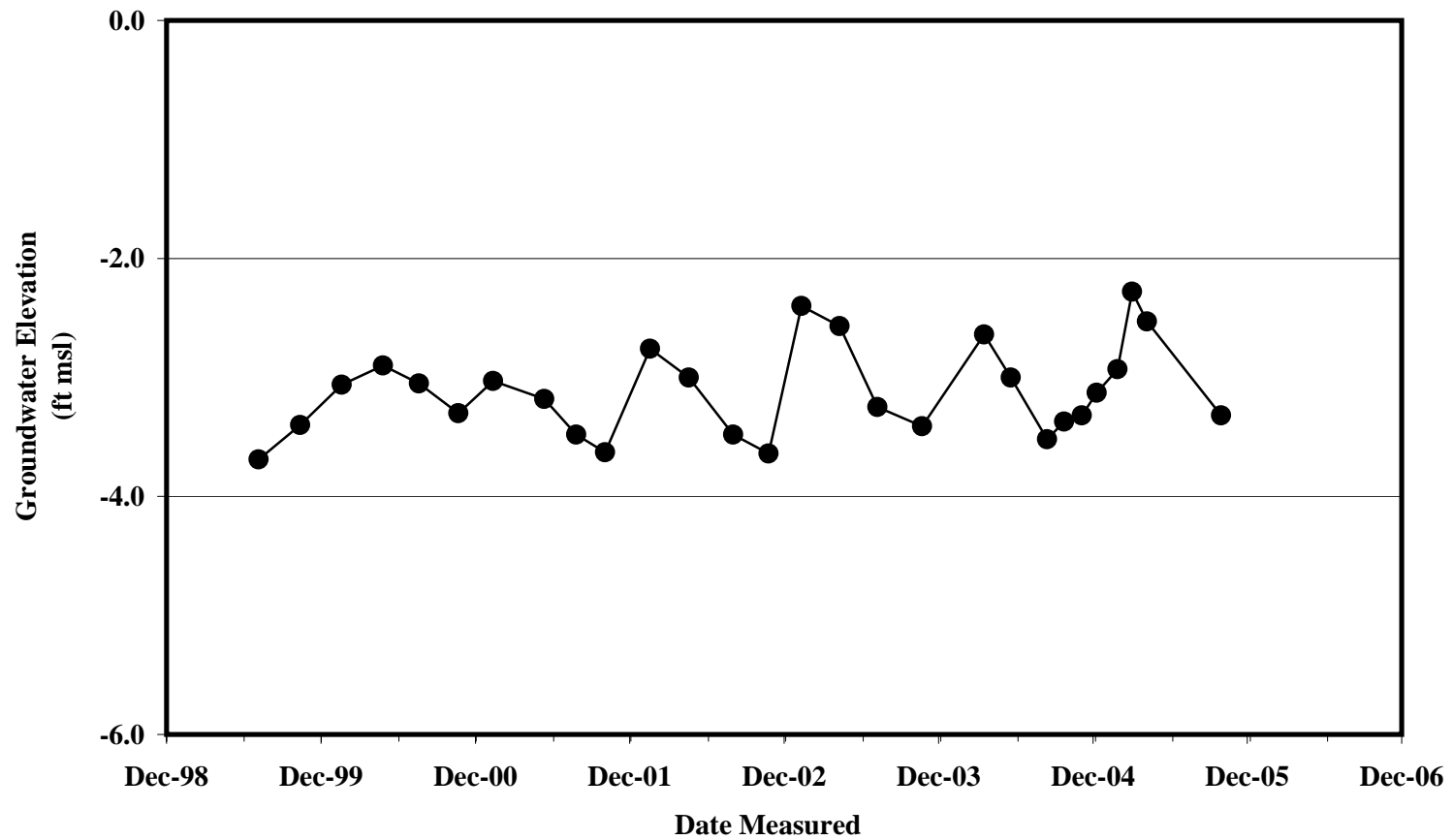
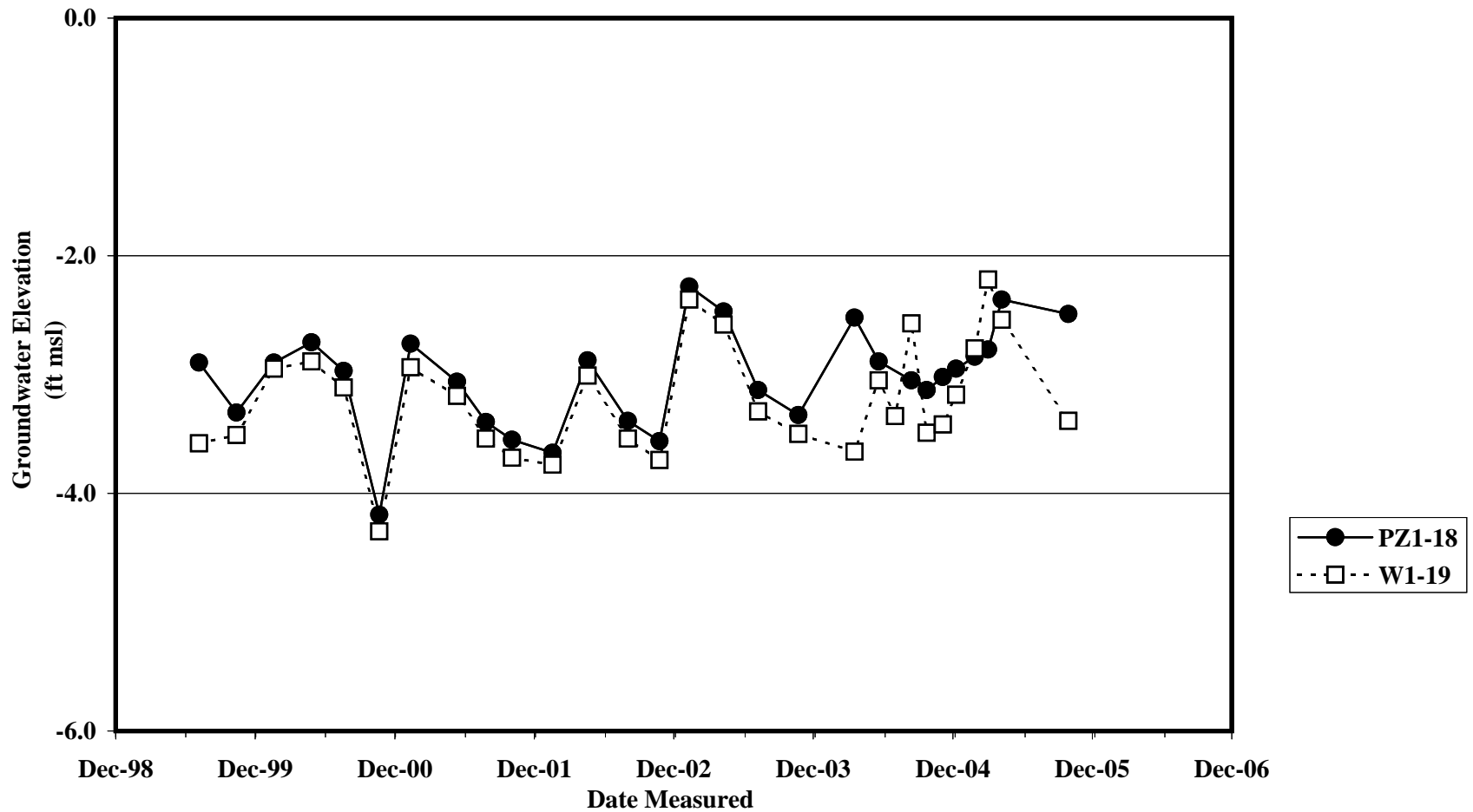


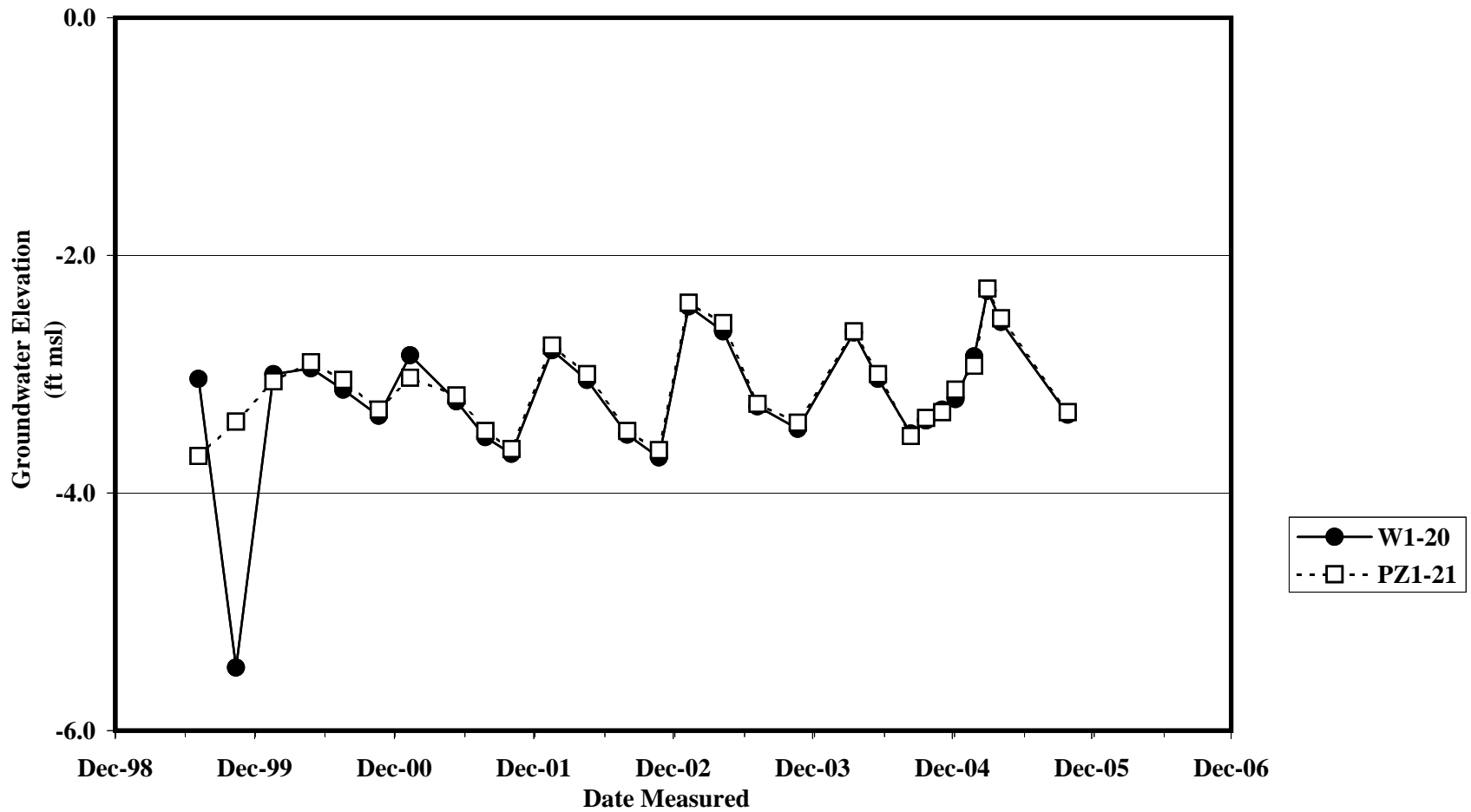
FIGURE D-17

DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
GROUNDWATER HYDROGRAPHS, PIEZOMETER PZ1-18 AND WELL W1-19



**FIGURE D-18**

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
GROUNDWATER HYDROGRAPHS, PIEZOMETER PZ1-21 AND WELL W1-20**

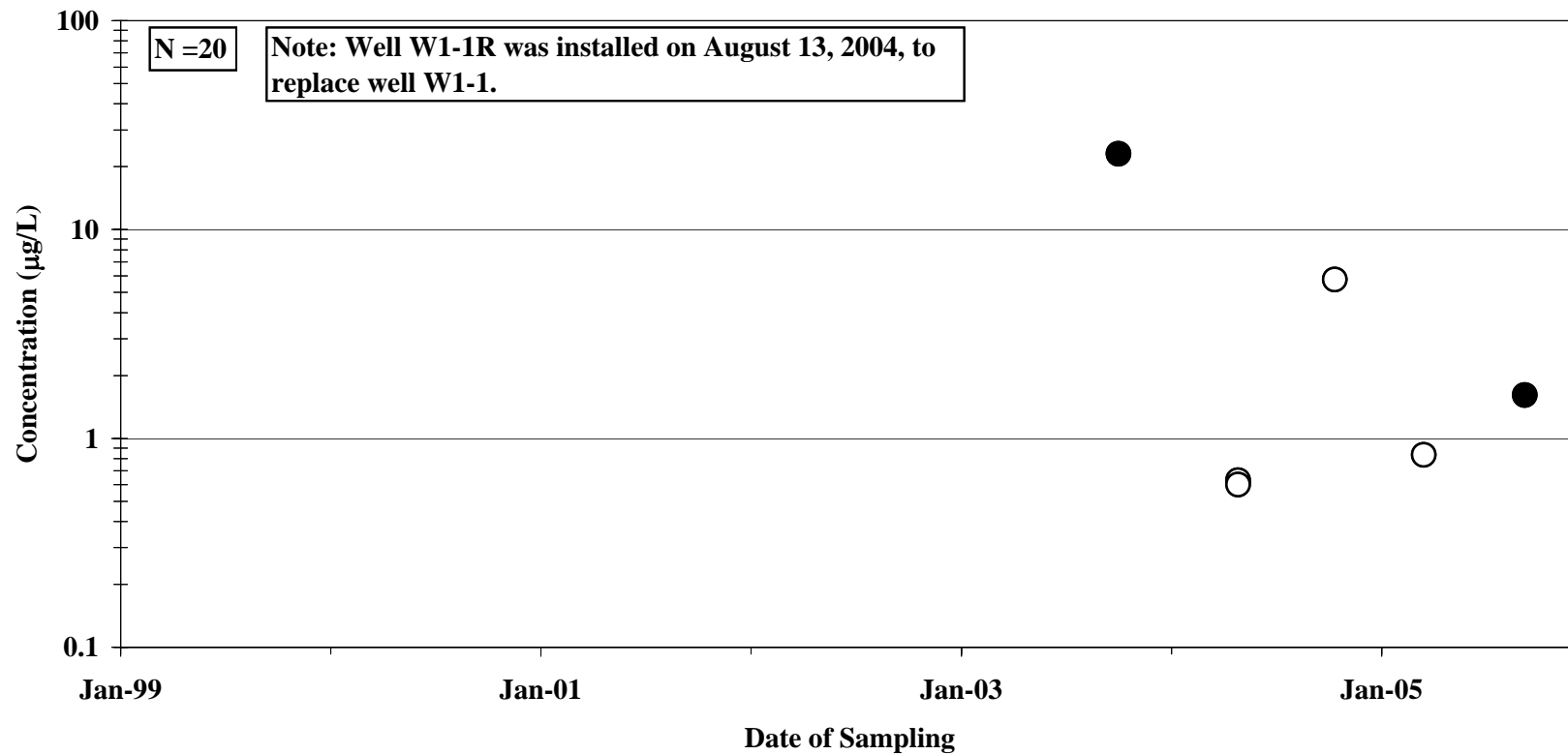


**APPENDIX E**

**GROUNDWATER MONITORING POINT DATA GRAPHS**

**FIGURE E-1**

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
DISSOLVED ARSENIC CONCENTRATIONS IN DOWNGRAIENT MONITORING WELL W1-1 / W1-1R**

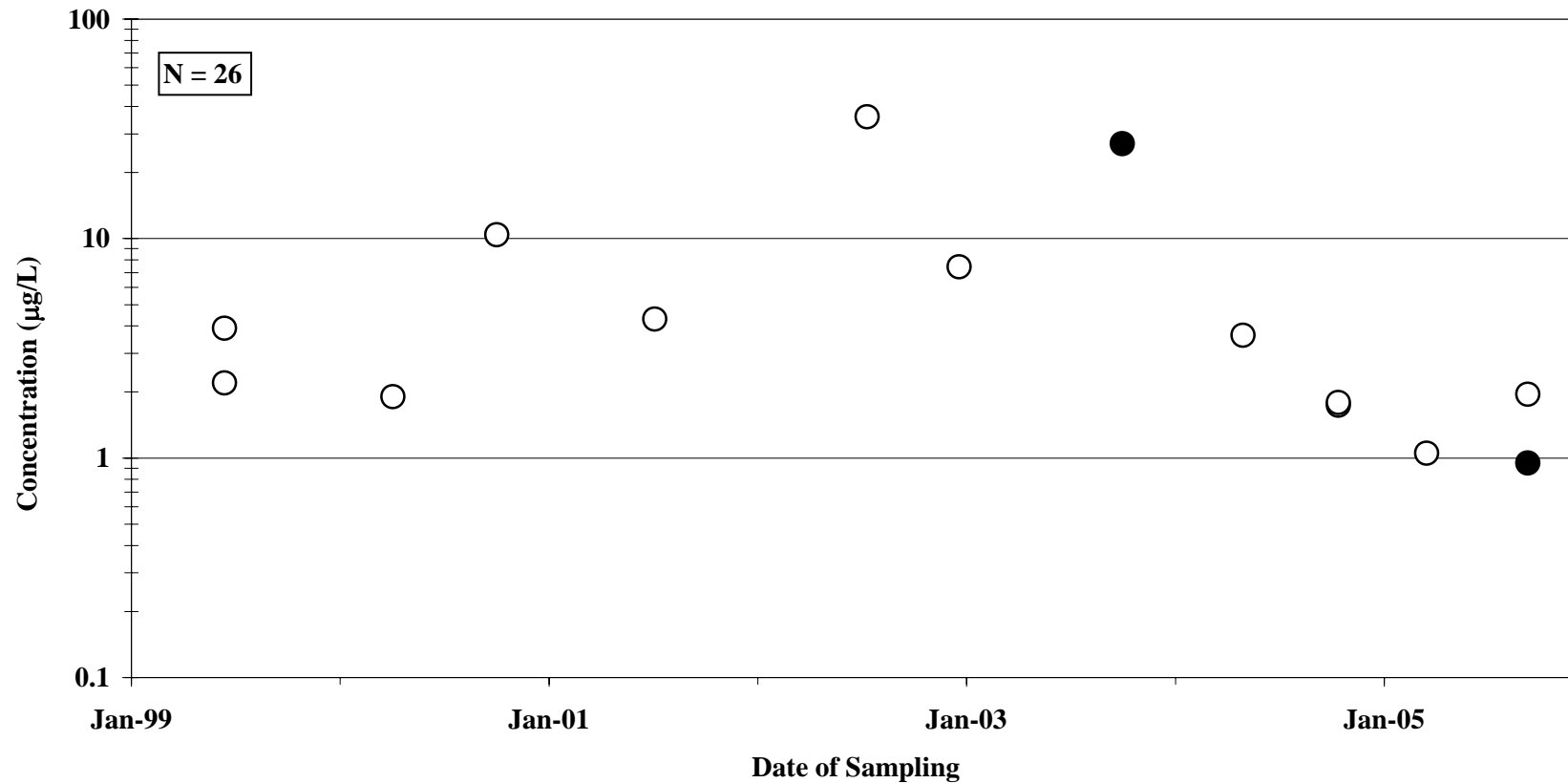


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-2**

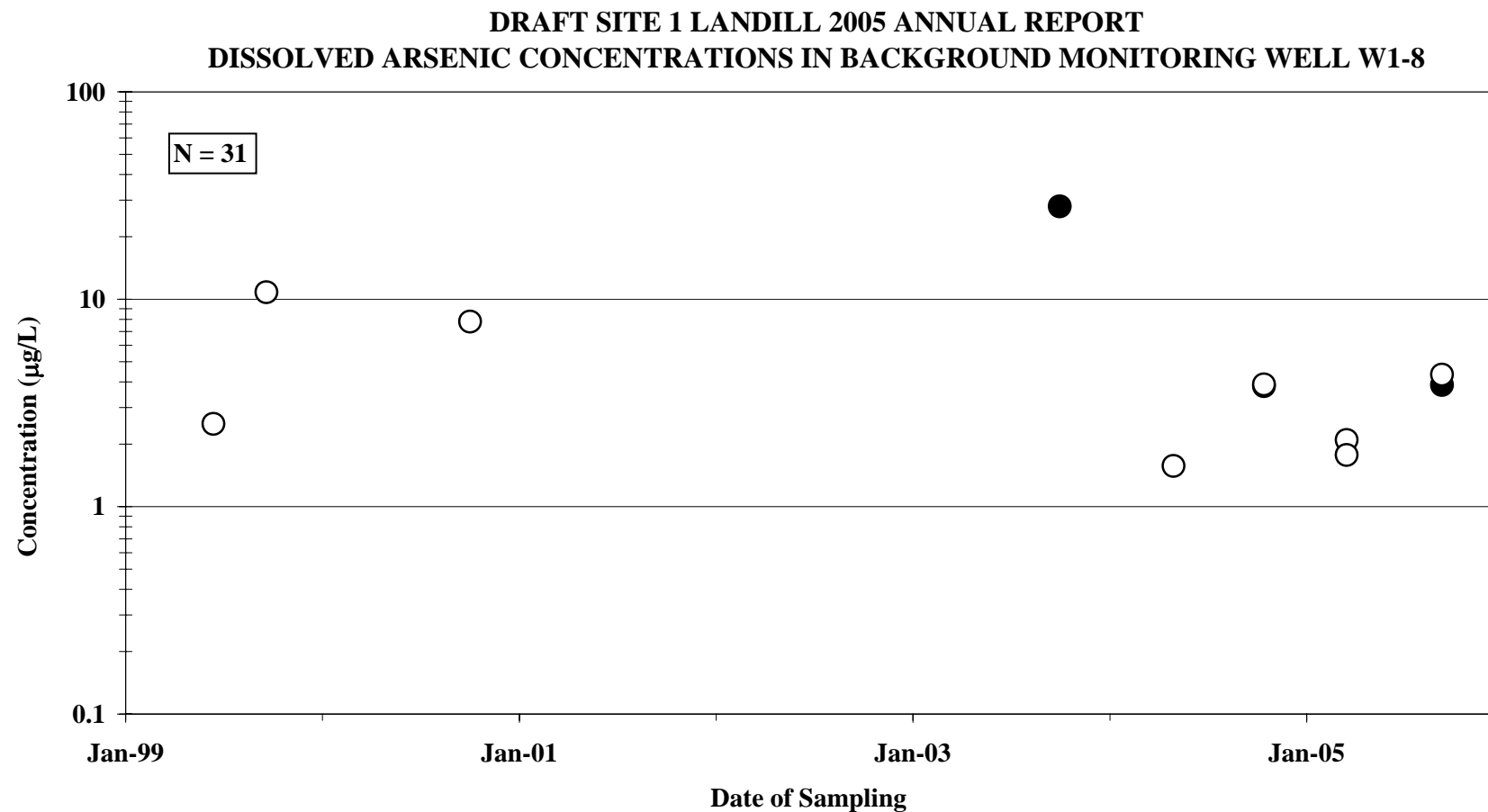
**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
DISSOLVED ARSENIC CONCENTRATIONS IN BACKGROUND MONITORING WELL W1-5**



**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-3**

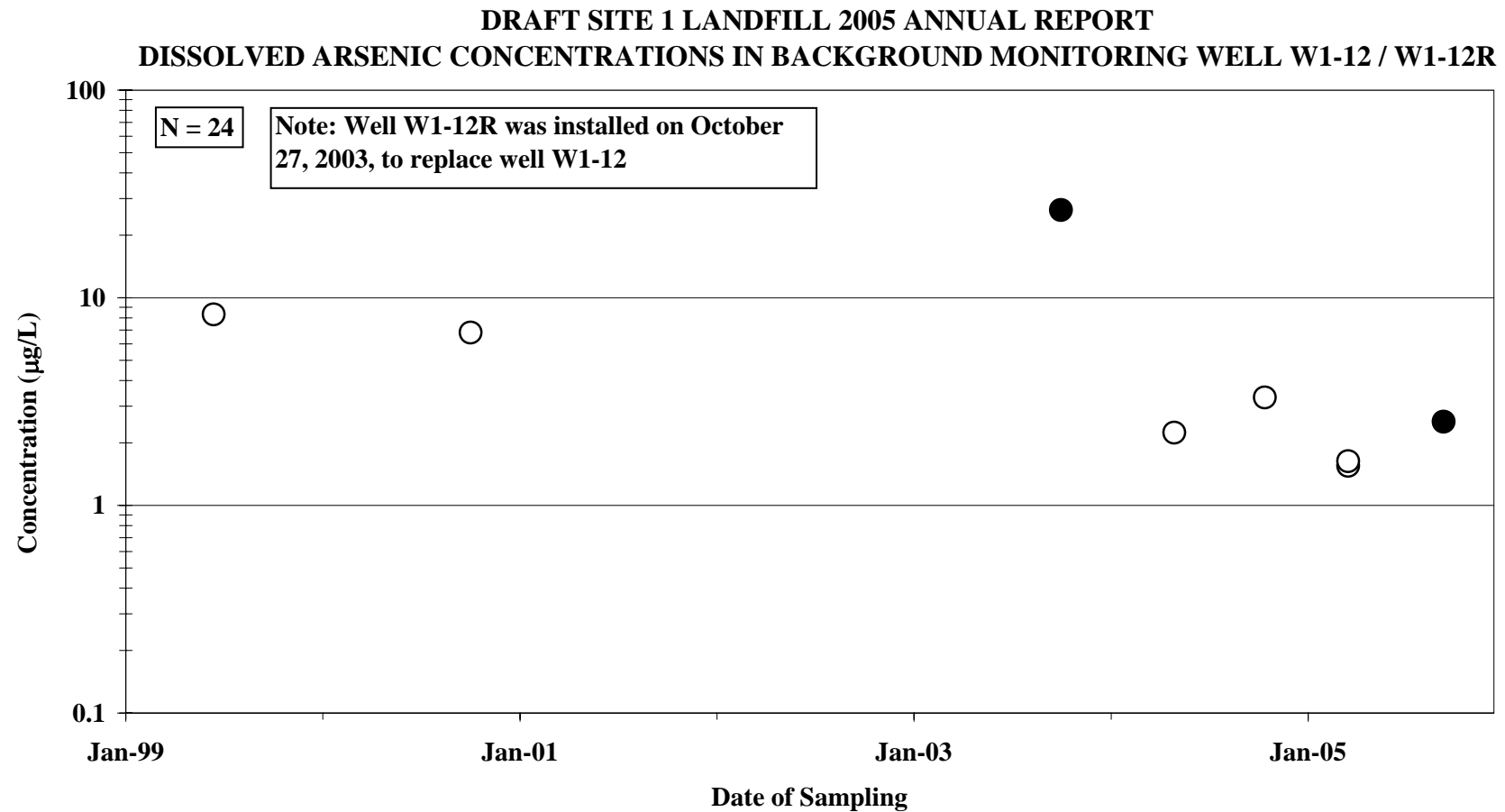


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.



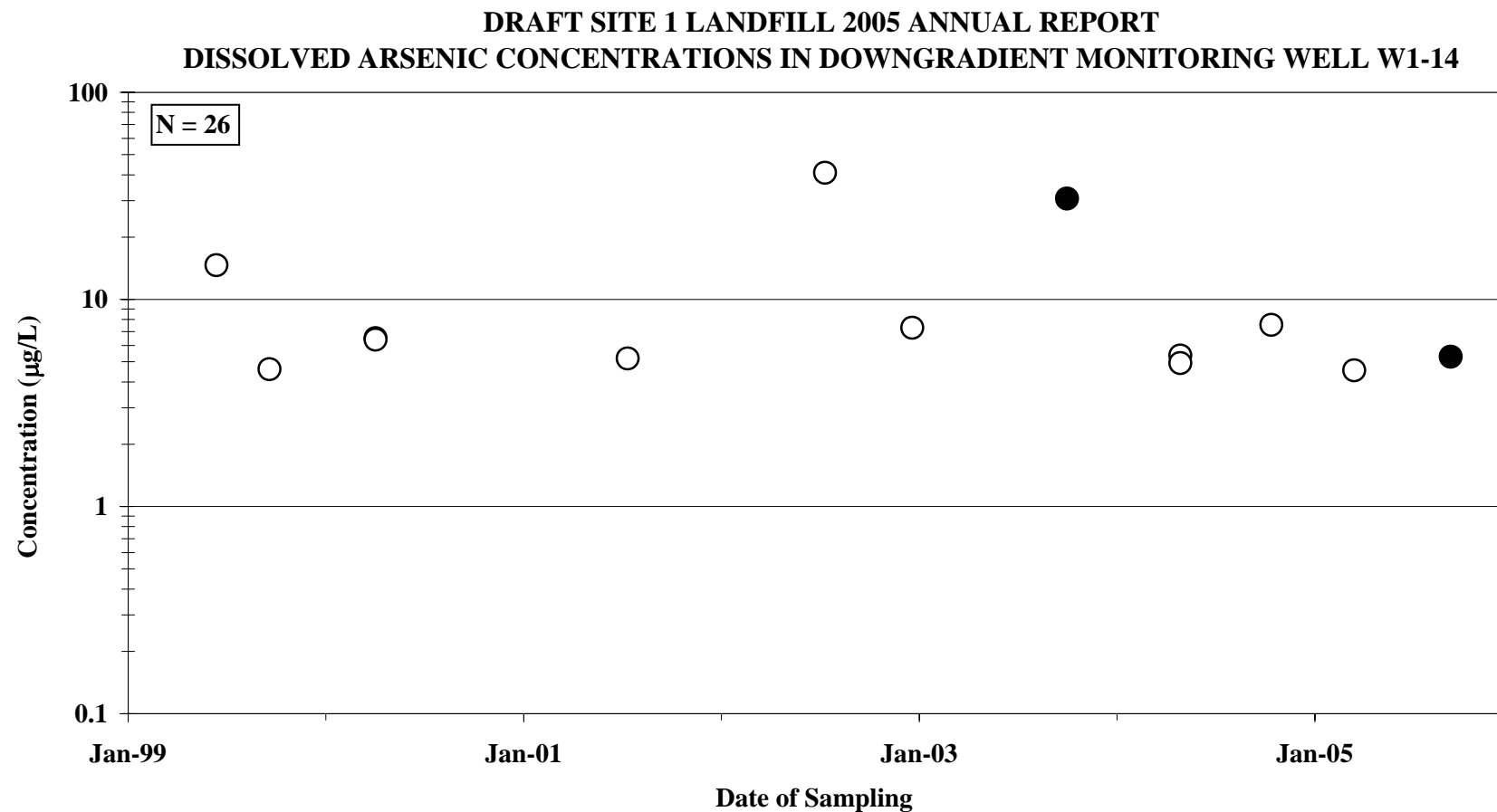
**FIGURE E-4**



**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

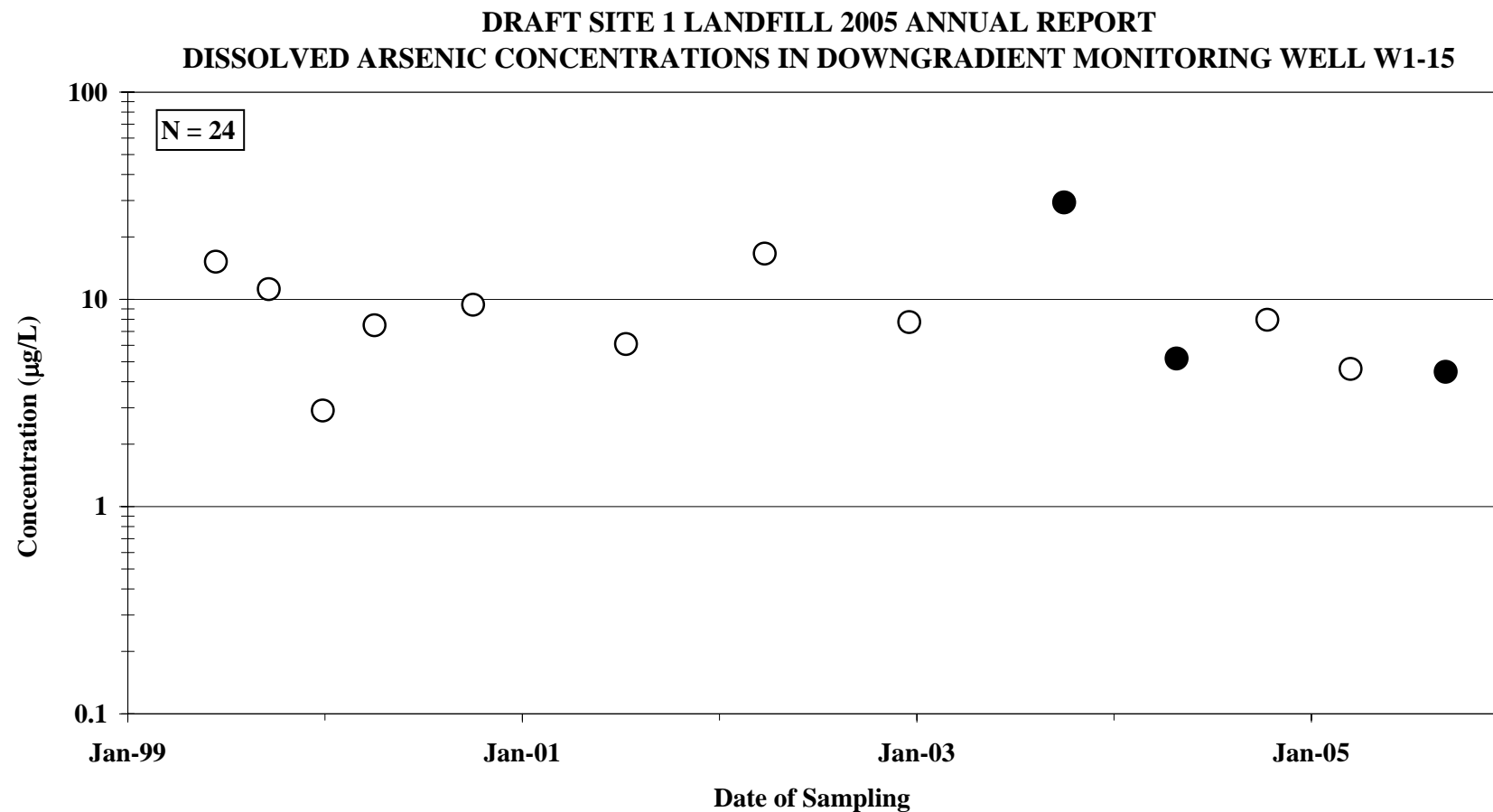
**FIGURE E-5**



**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

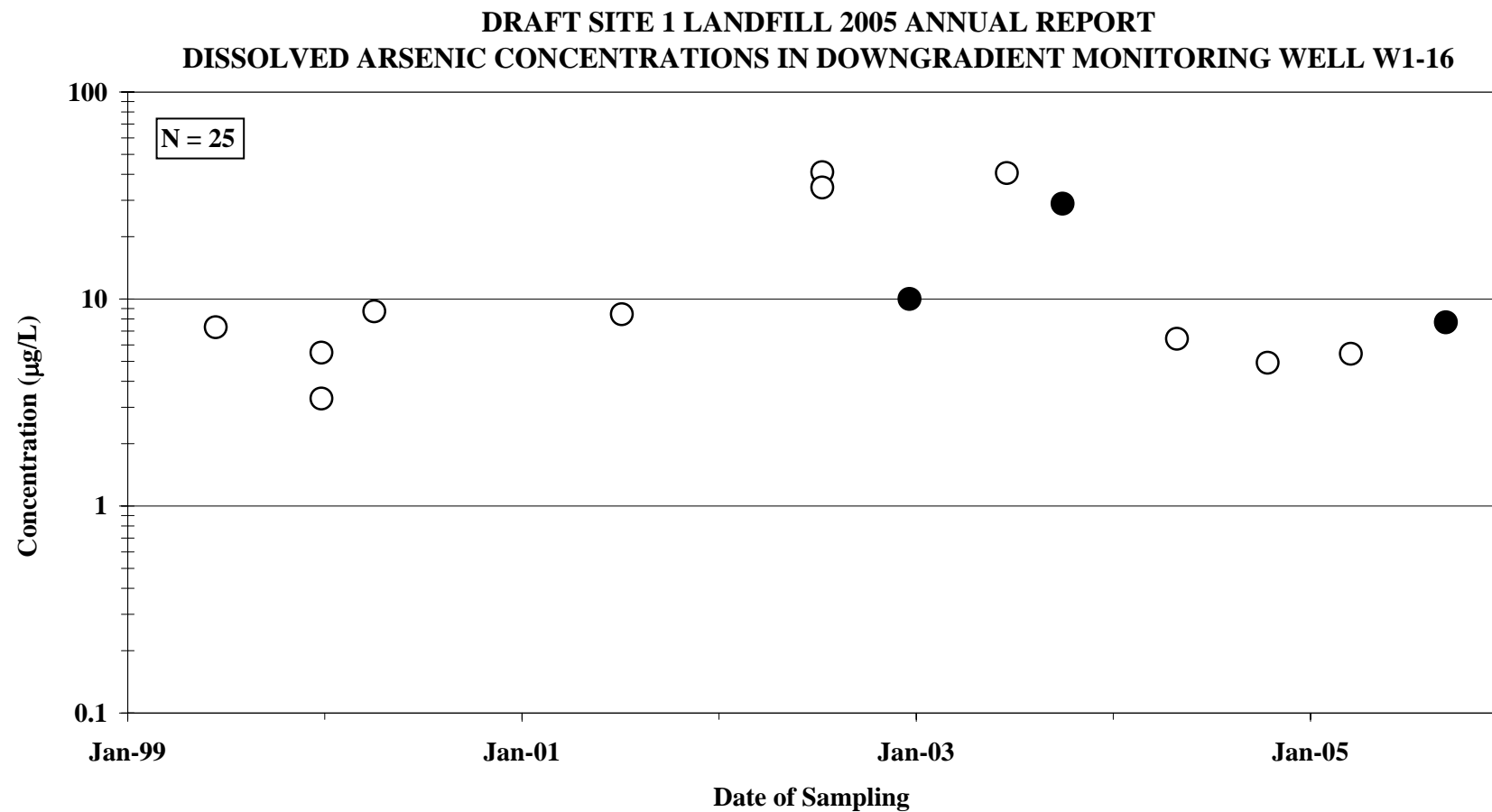
**FIGURE E-6**



**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

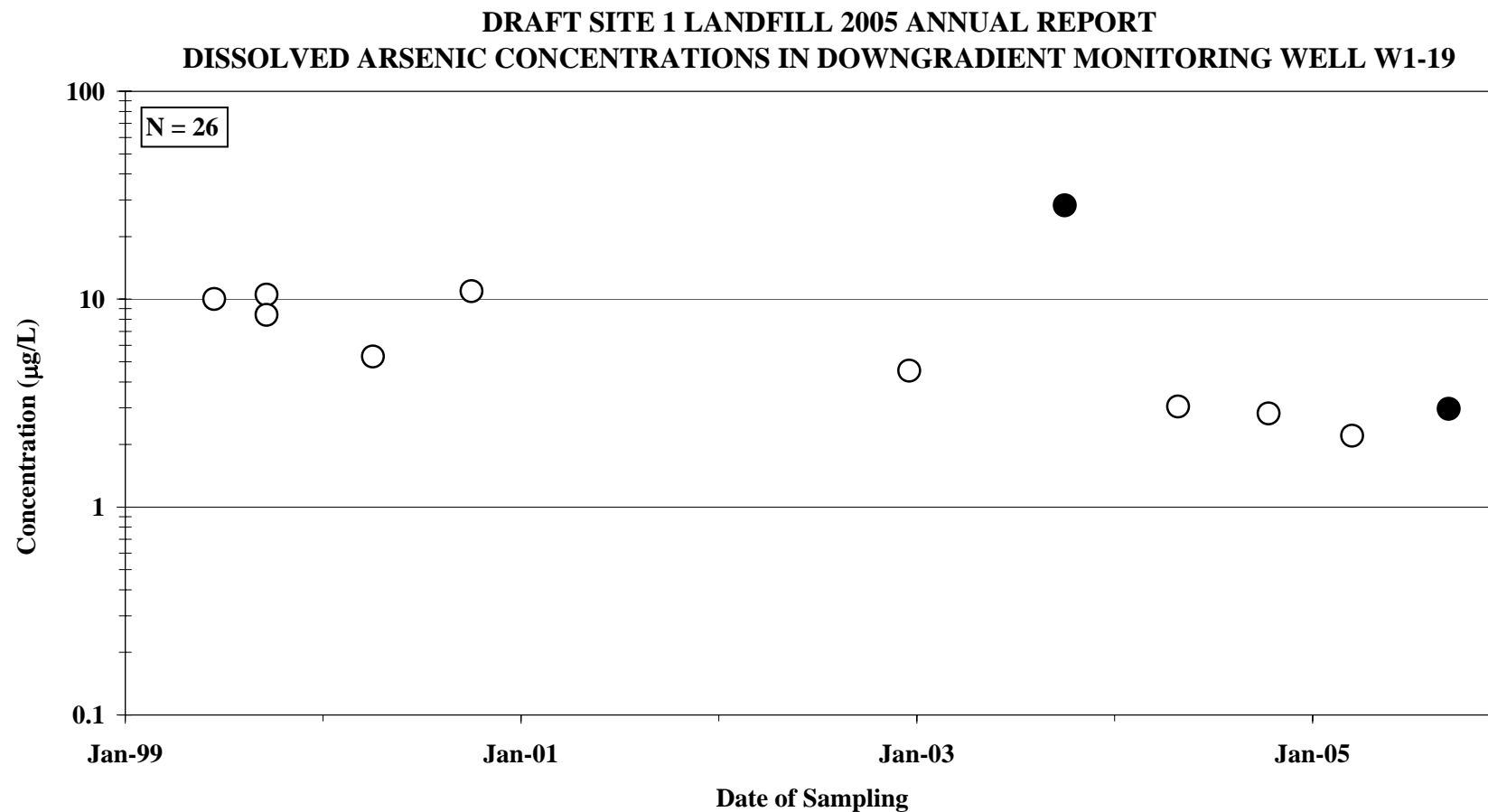
**FIGURE E-7**



**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

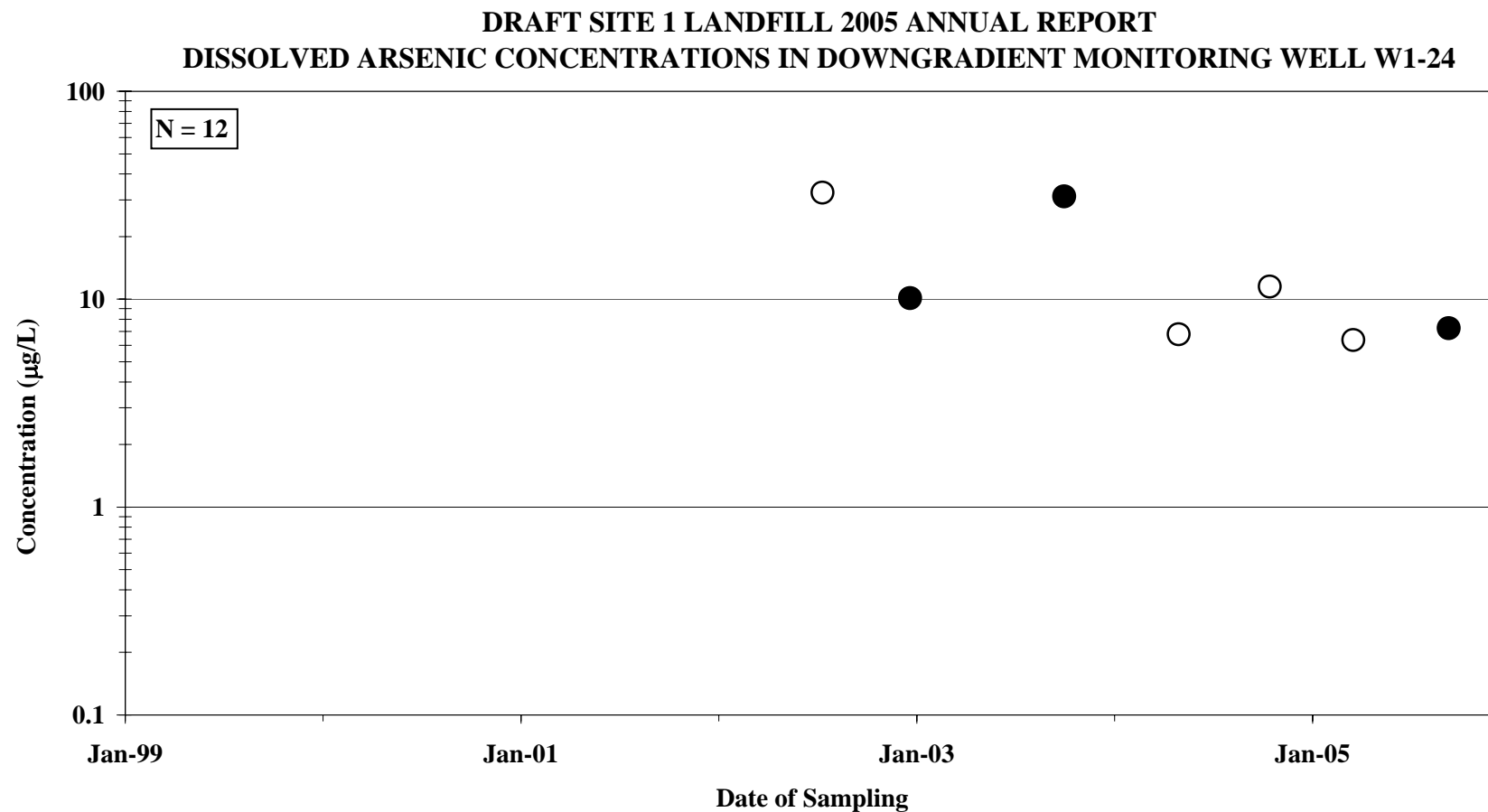
**FIGURE E-8**



**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

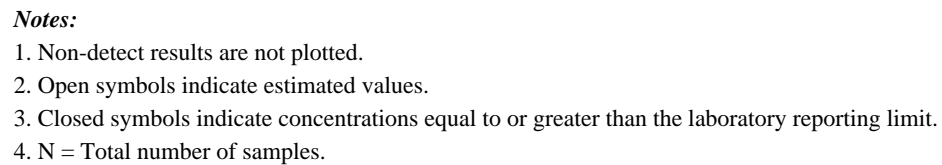
**FIGURE E-9**



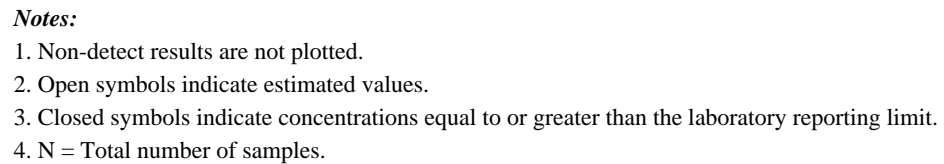
**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT**  
**DISSOLVED BARIUM CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-1 / W1-1R**

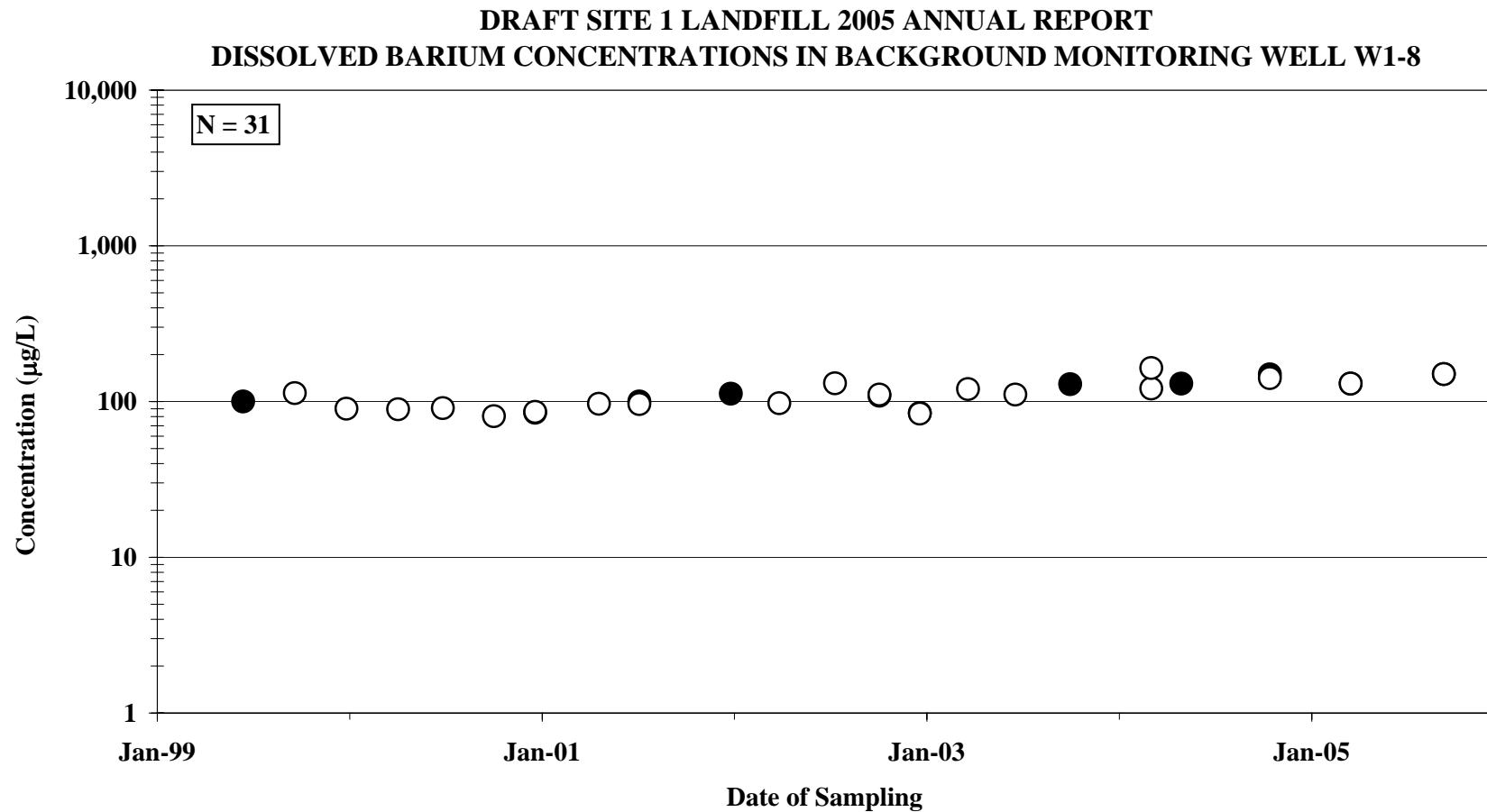


**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT**  
**DISSOLVED BARIUM CONCENTRATIONS IN BACKGROUND MONITORING WELL W1-5**





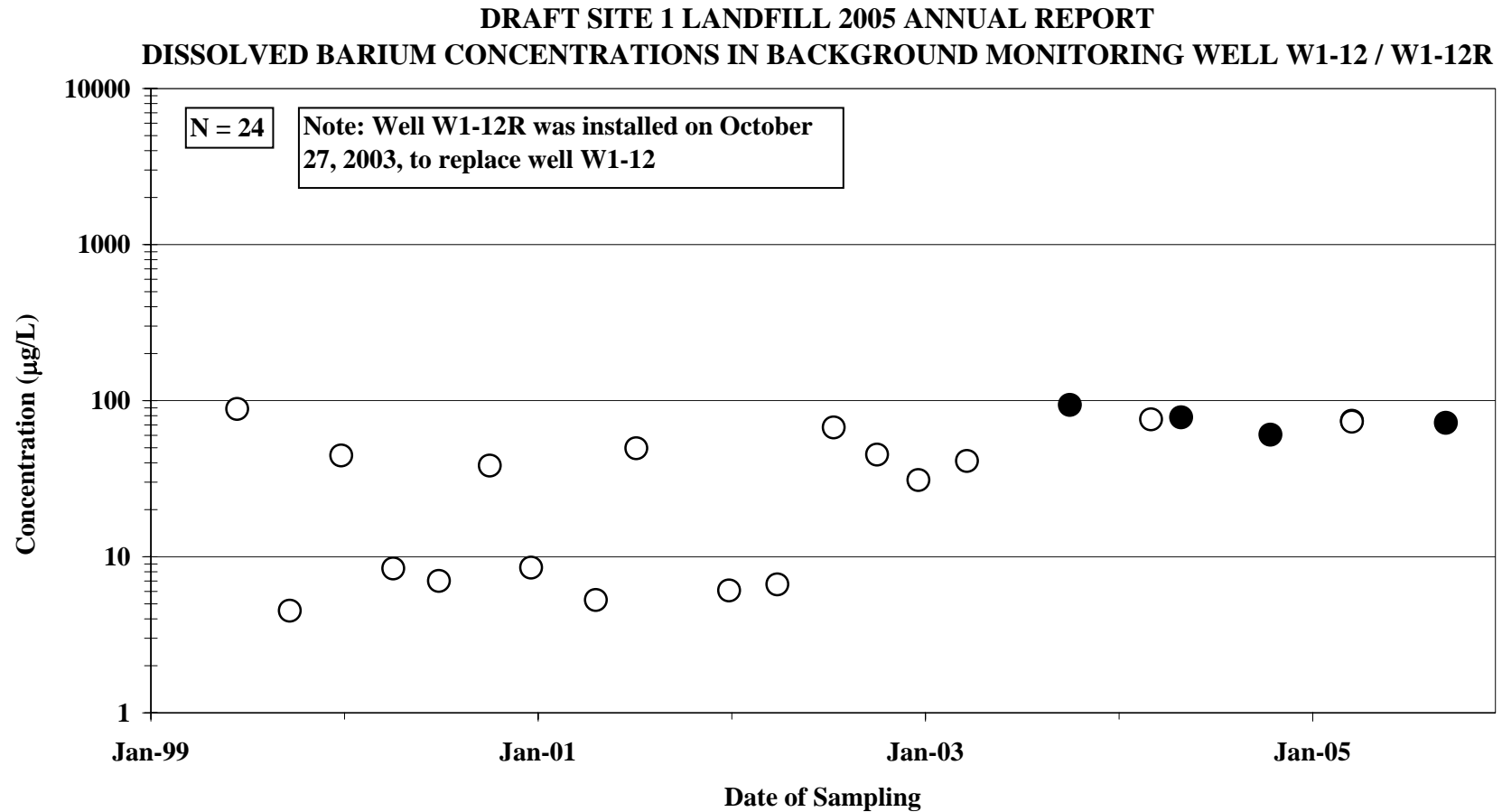
**FIGURE E-12**



**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

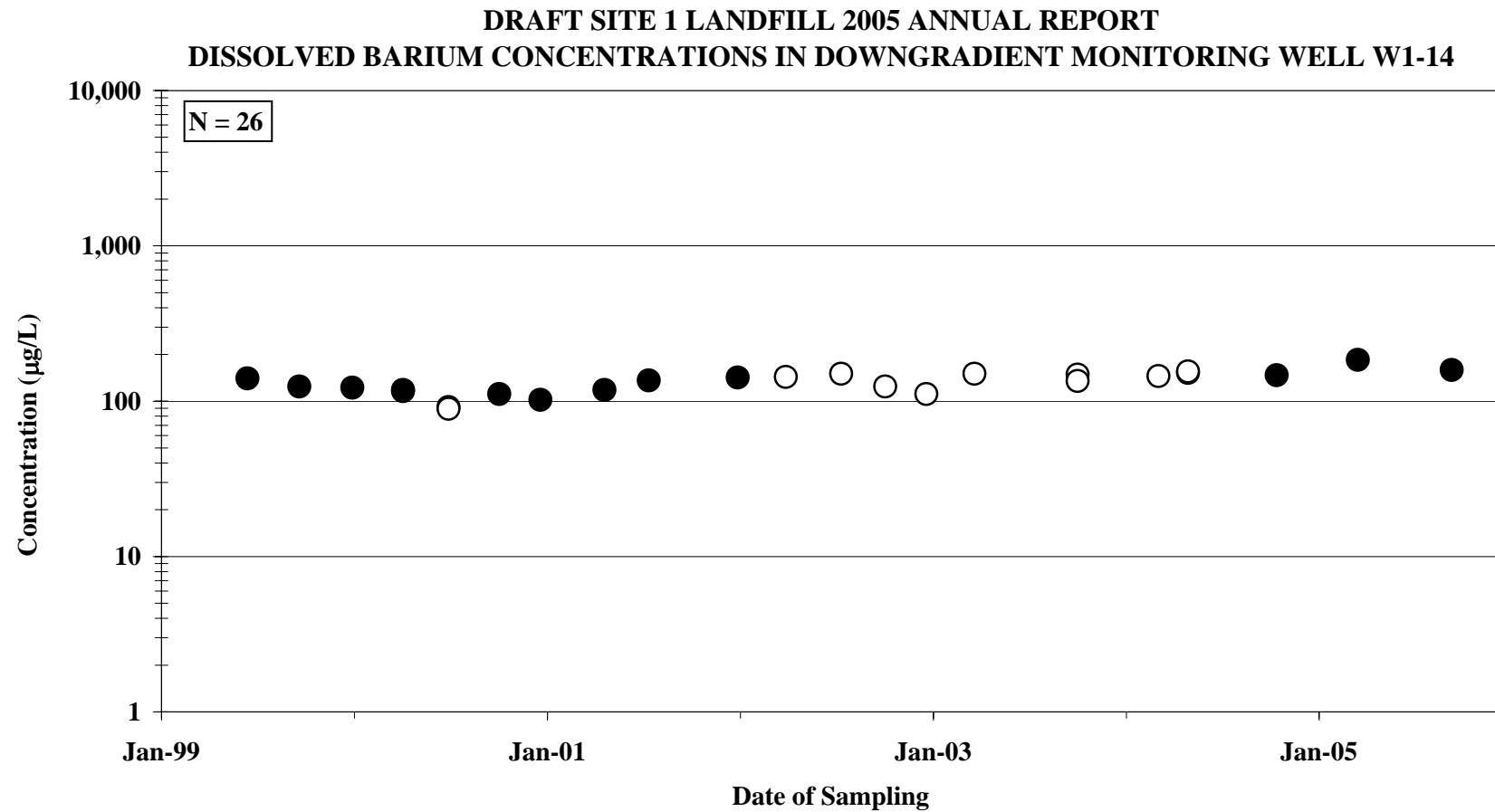
**FIGURE E-13**



**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

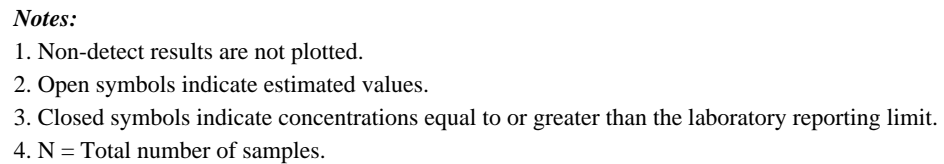
**FIGURE E-14**



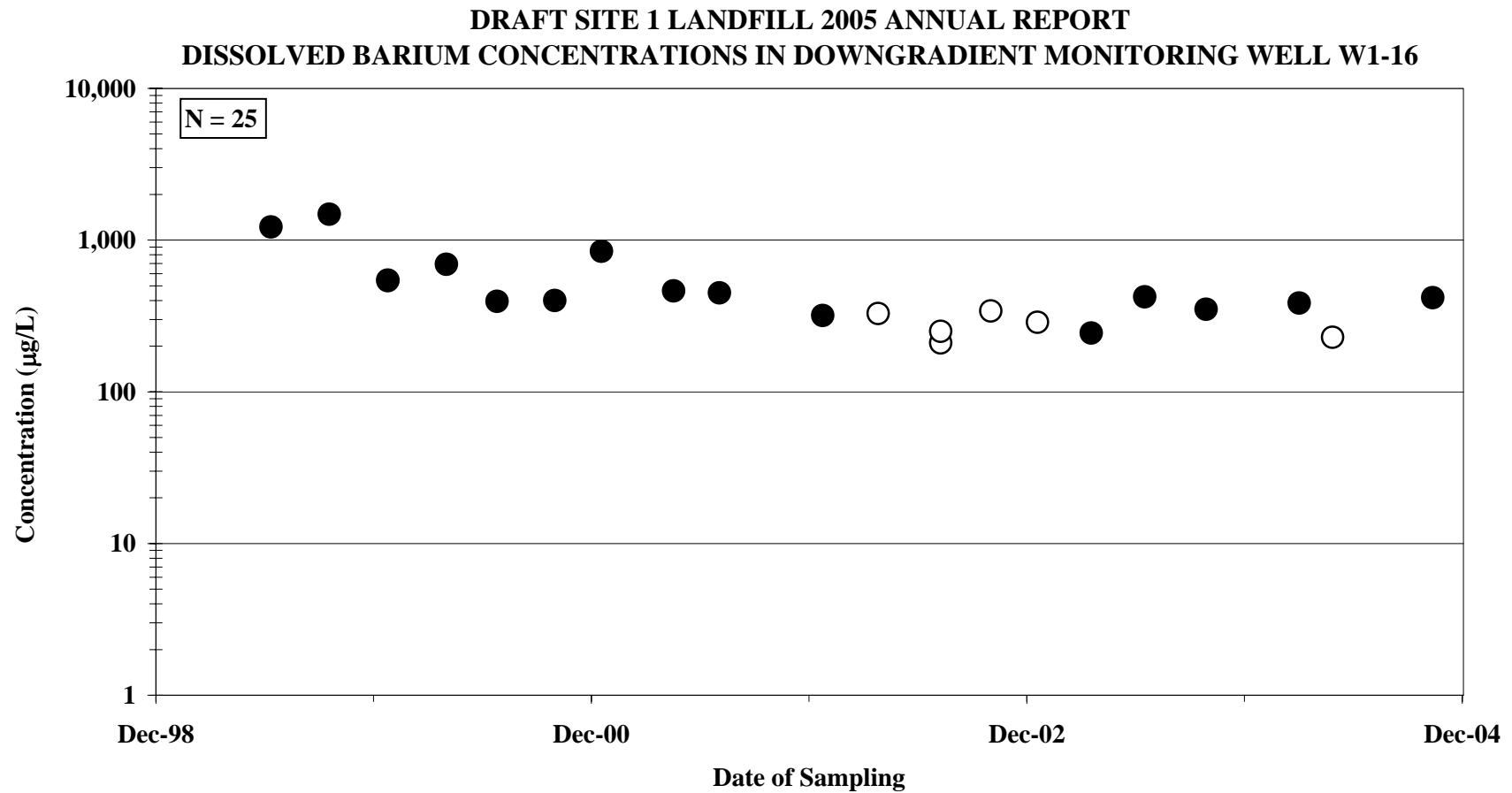
**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT**  
**DISSOLVED BARIUM CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-15**



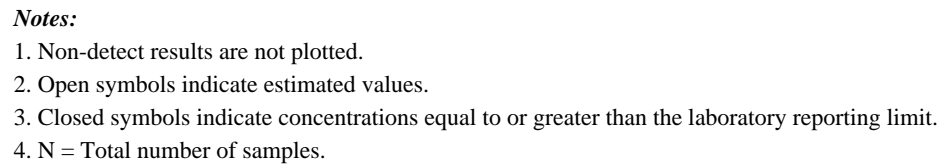
**FIGURE E-16**



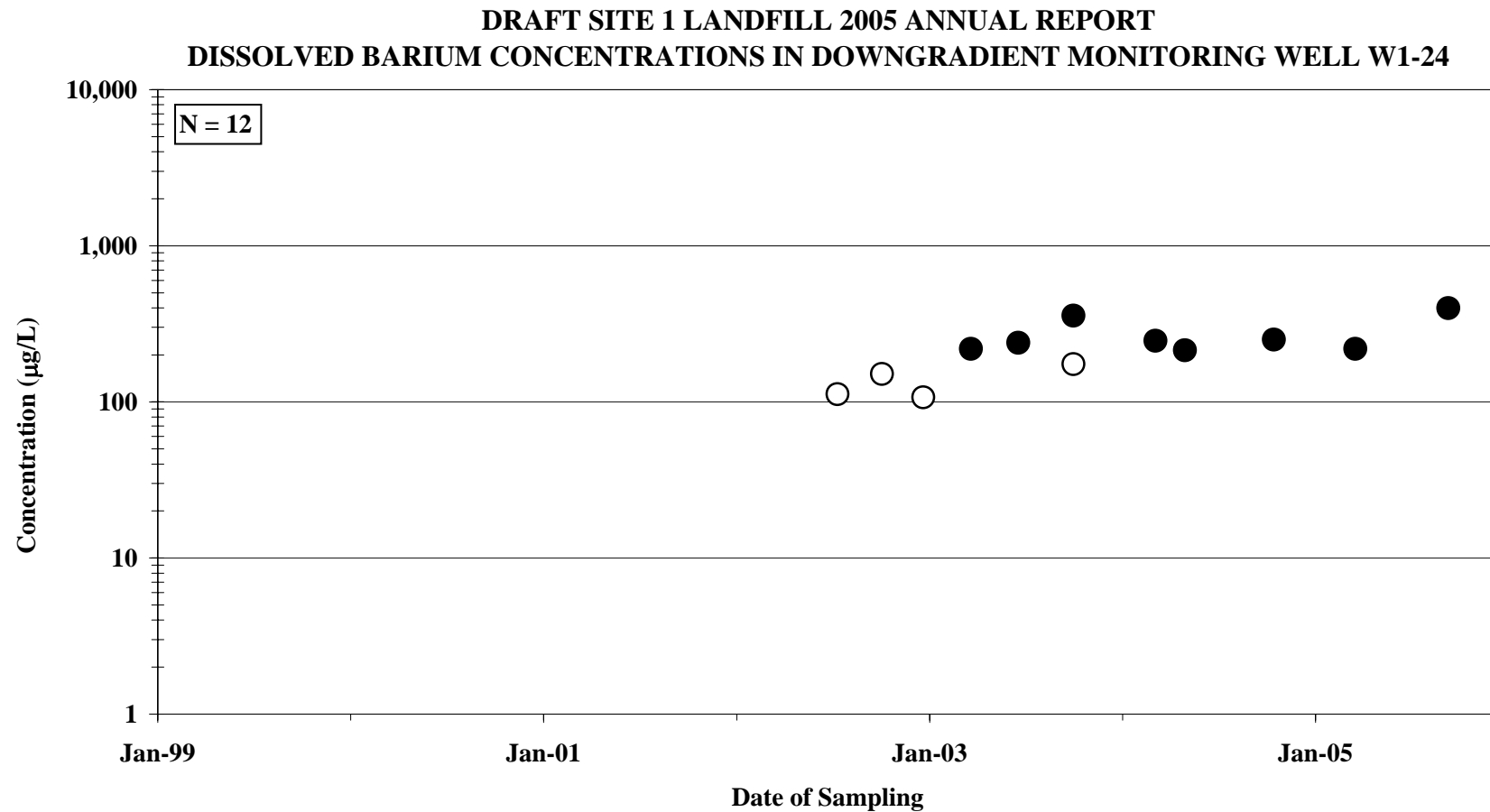
**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT**  
**DISSOLVED BARIUM CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-19**



**FIGURE E-18**

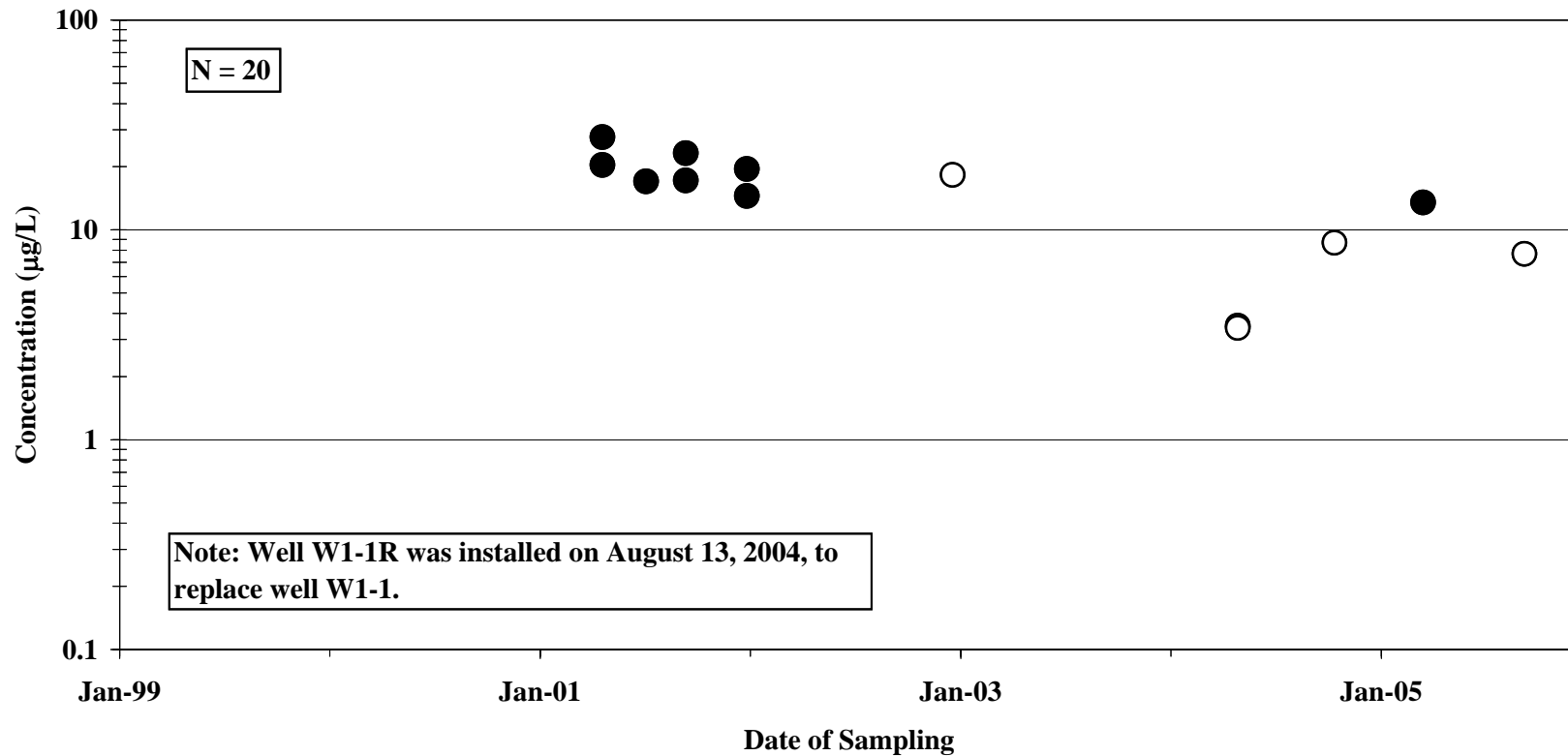


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-19**

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
DISSOLVED COBALT CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-1 / W1-1R**



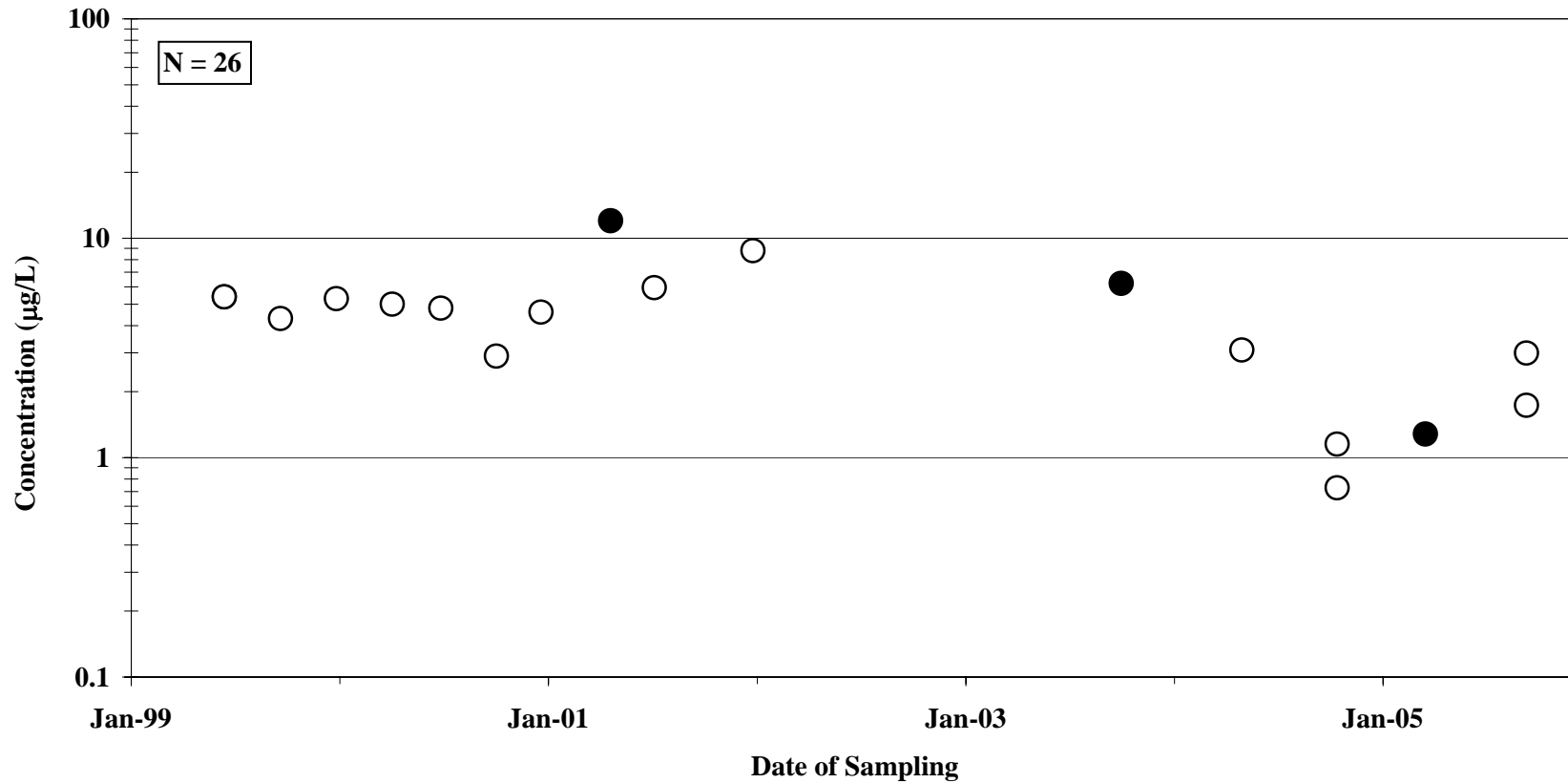
**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.



**FIGURE E-20**

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
DISSOLVED COBALT CONCENTRATIONS IN BACKGROUND MONITORING WELL W1-5**

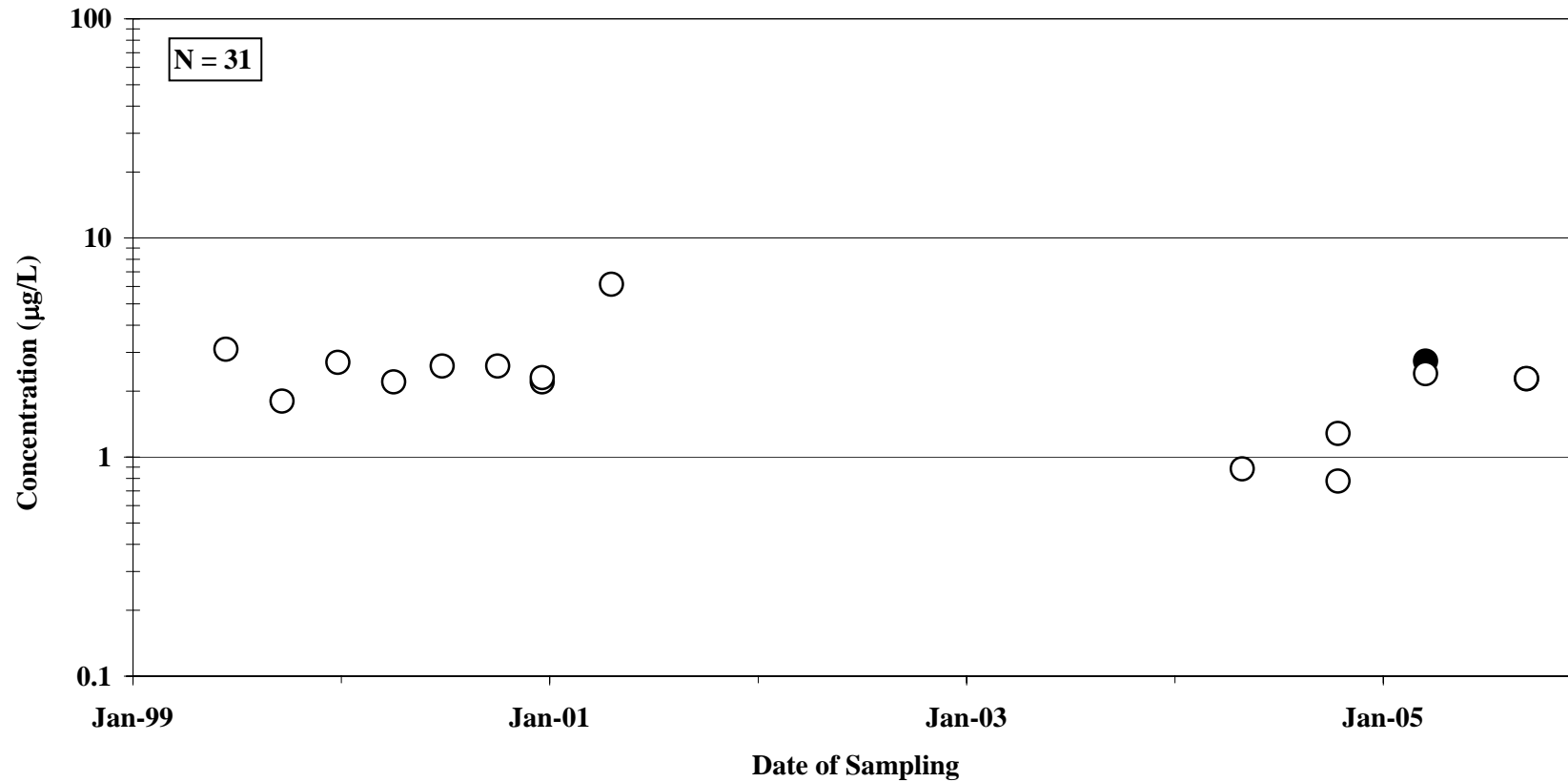


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-21**

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
DISSOLVED COBALT CONCENTRATIONS IN BACKGROUND MONITORING WELL W1-8**

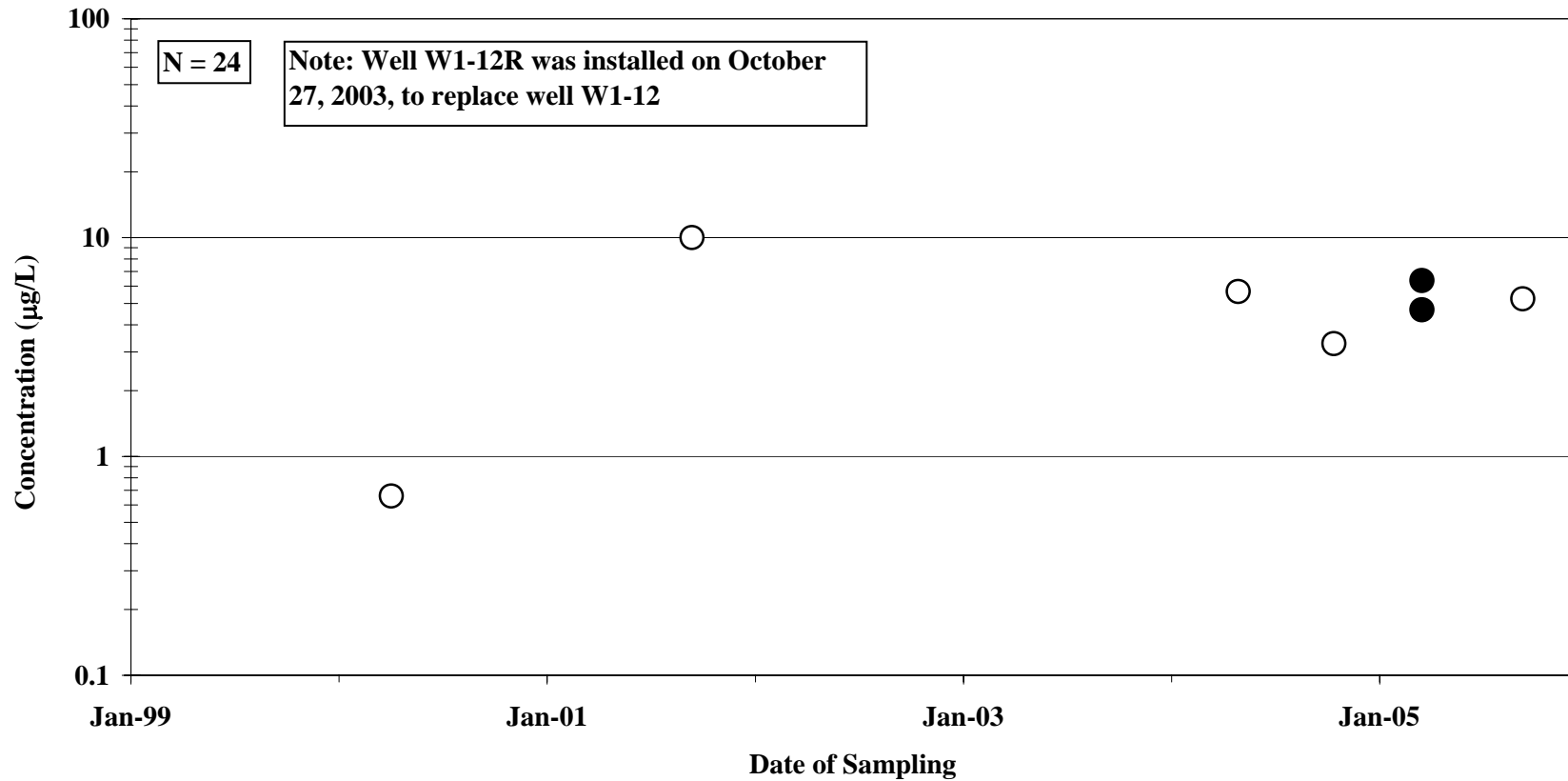


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-22**

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
DISSOLVED COBALT CONCENTRATIONS IN BACKGROUND MONITORING WELL W1-12 / W1-12R**

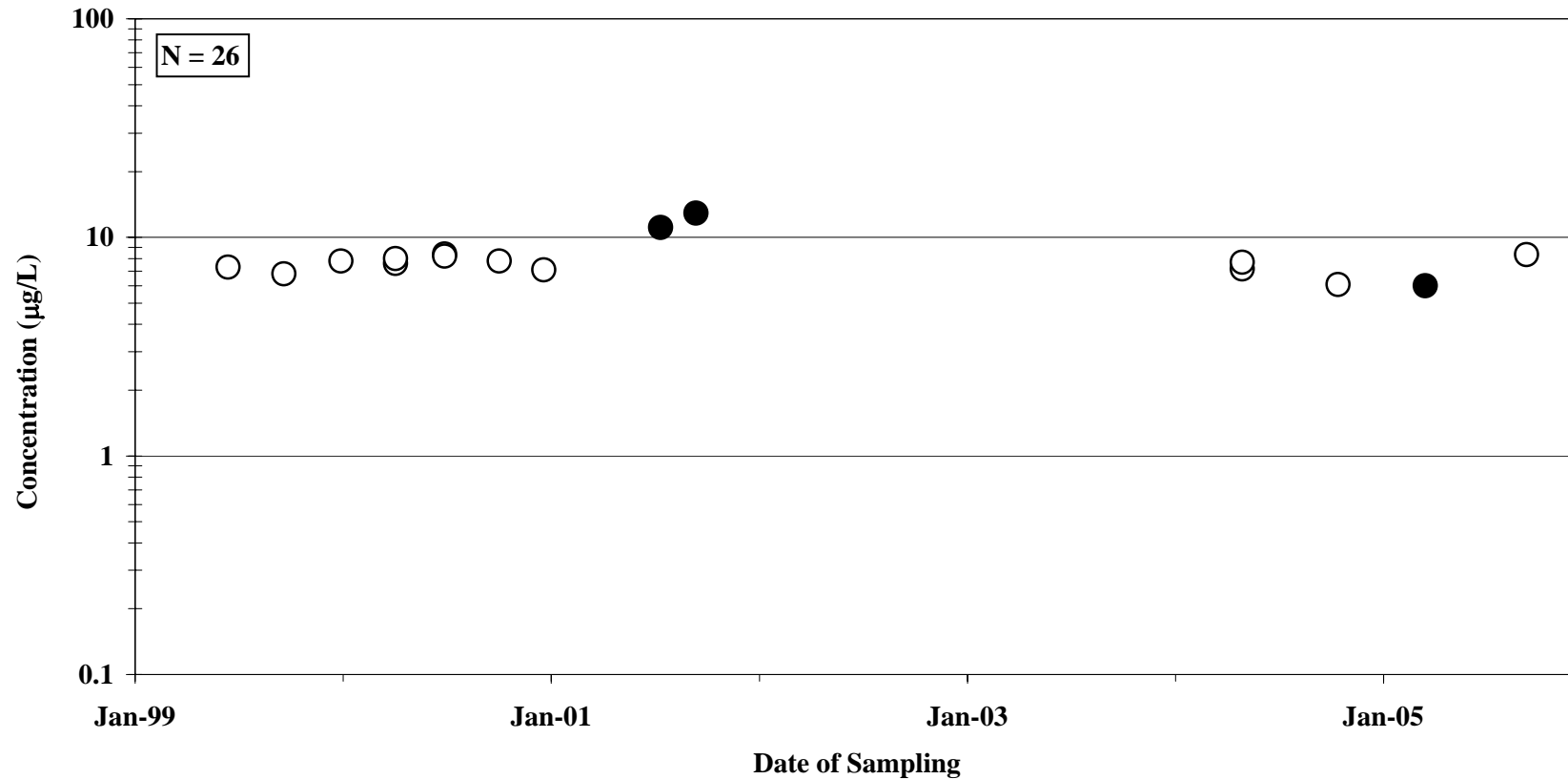


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-23**

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
DISSOLVED COBALT CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-14**

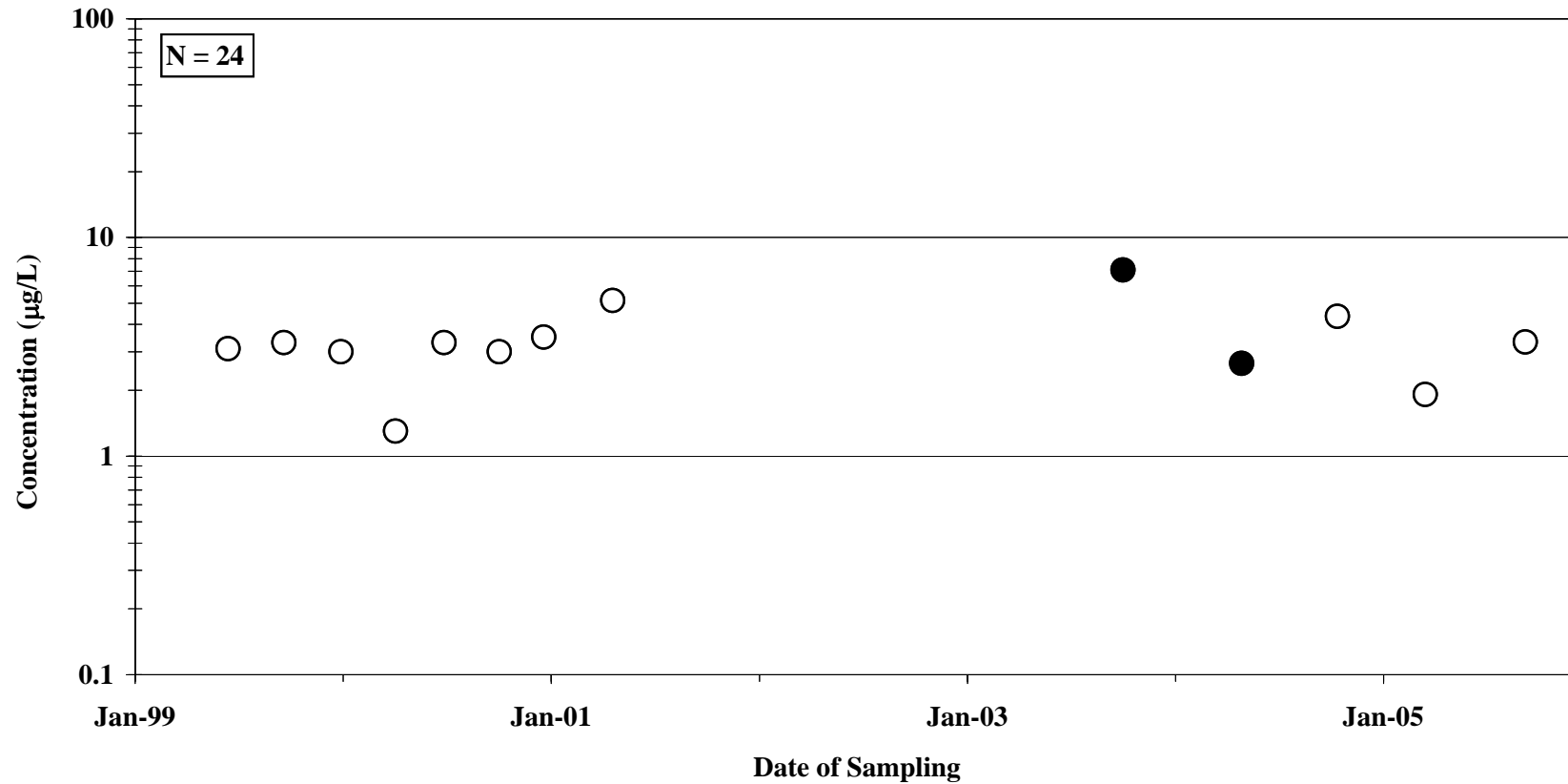


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-24**

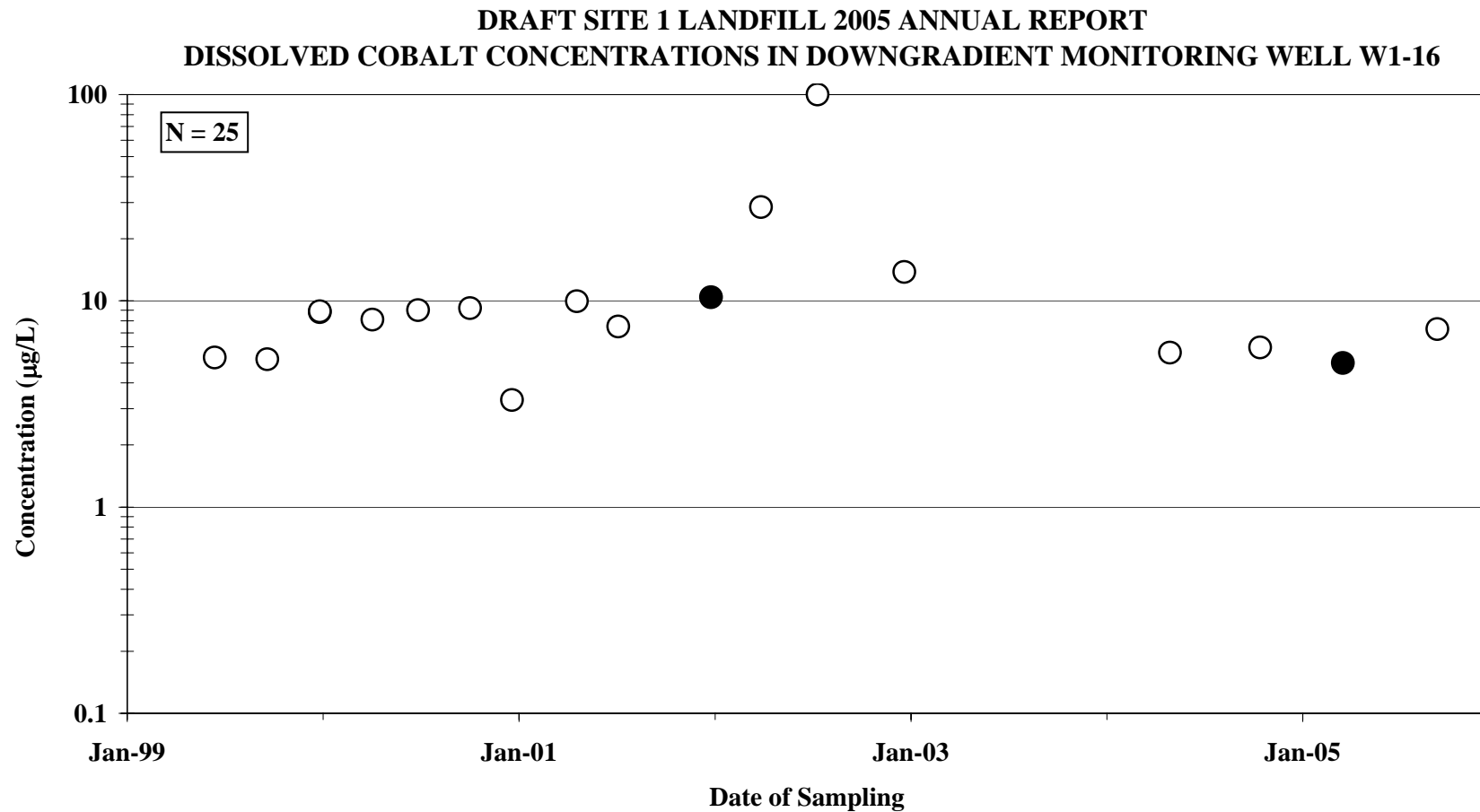
**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
DISSOLVED COBALT CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-15**



**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

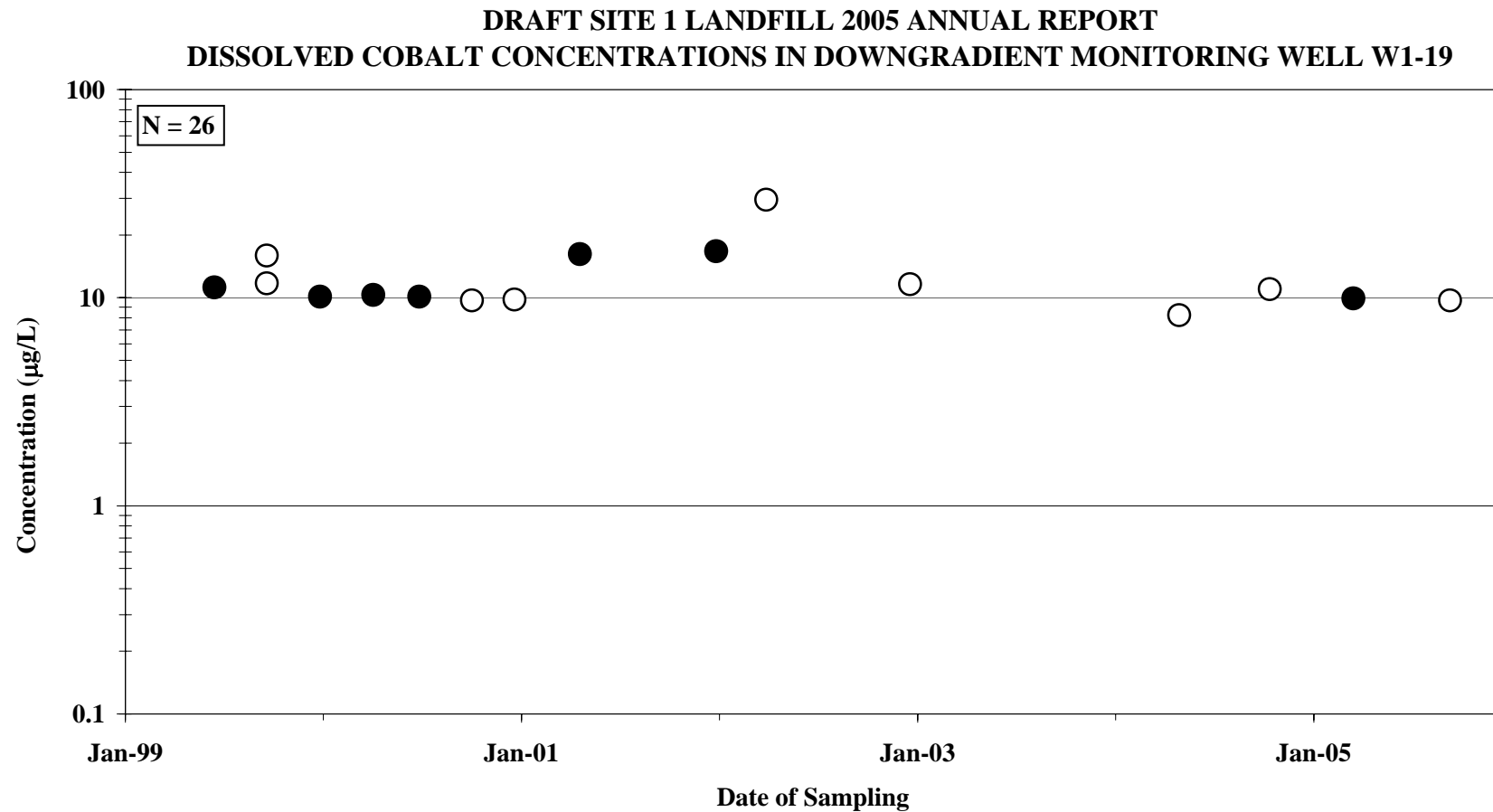
**FIGURE E-25**



**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-26**

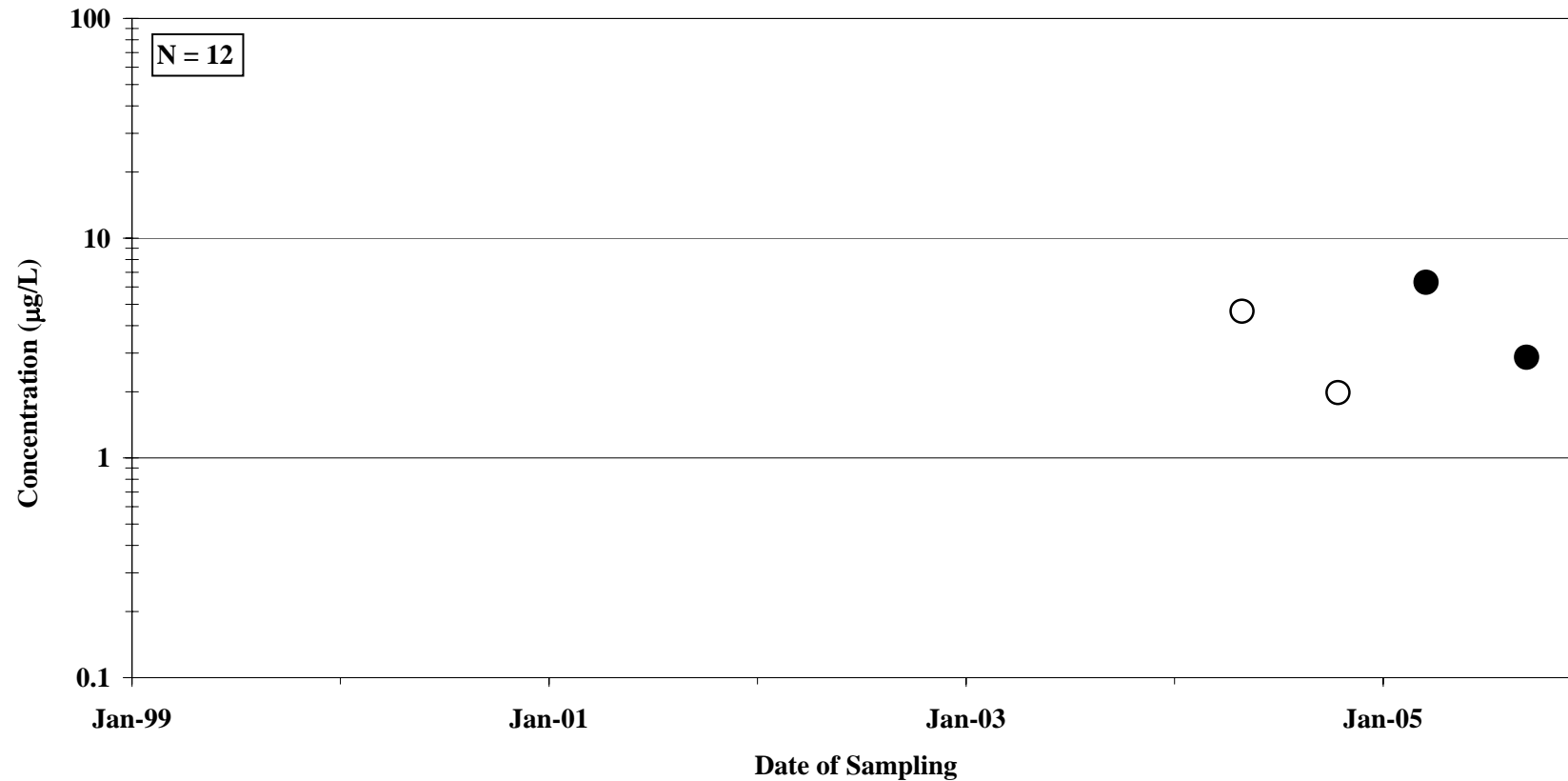


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-27**

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
DISSOLVED COBALT CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-24**



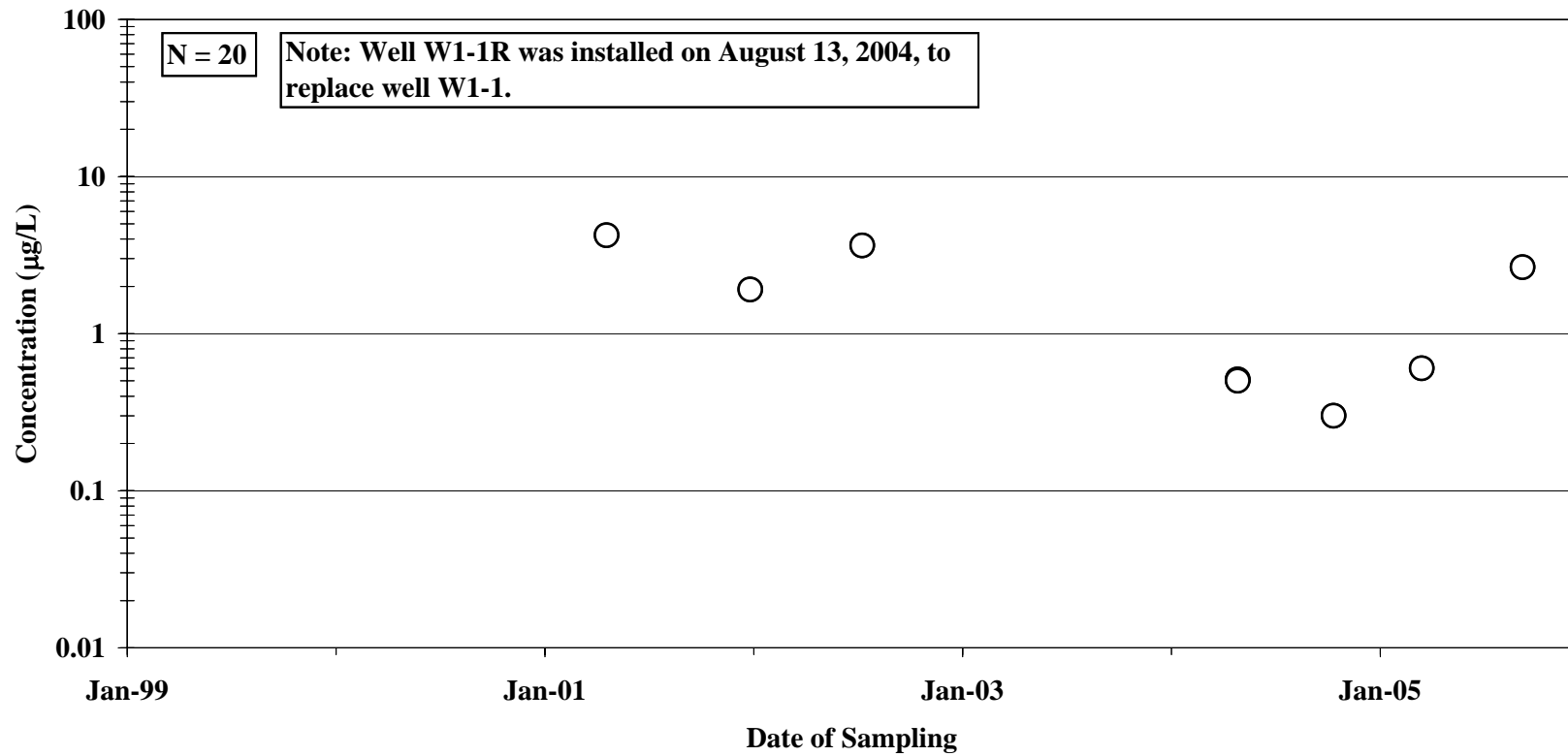
**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.



**FIGURE E-28**

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
DISSOLVED COPPER CONCENTRATIONS IN DOWNGRADIENT MONITORING WELL W1-1 / W1-1R**

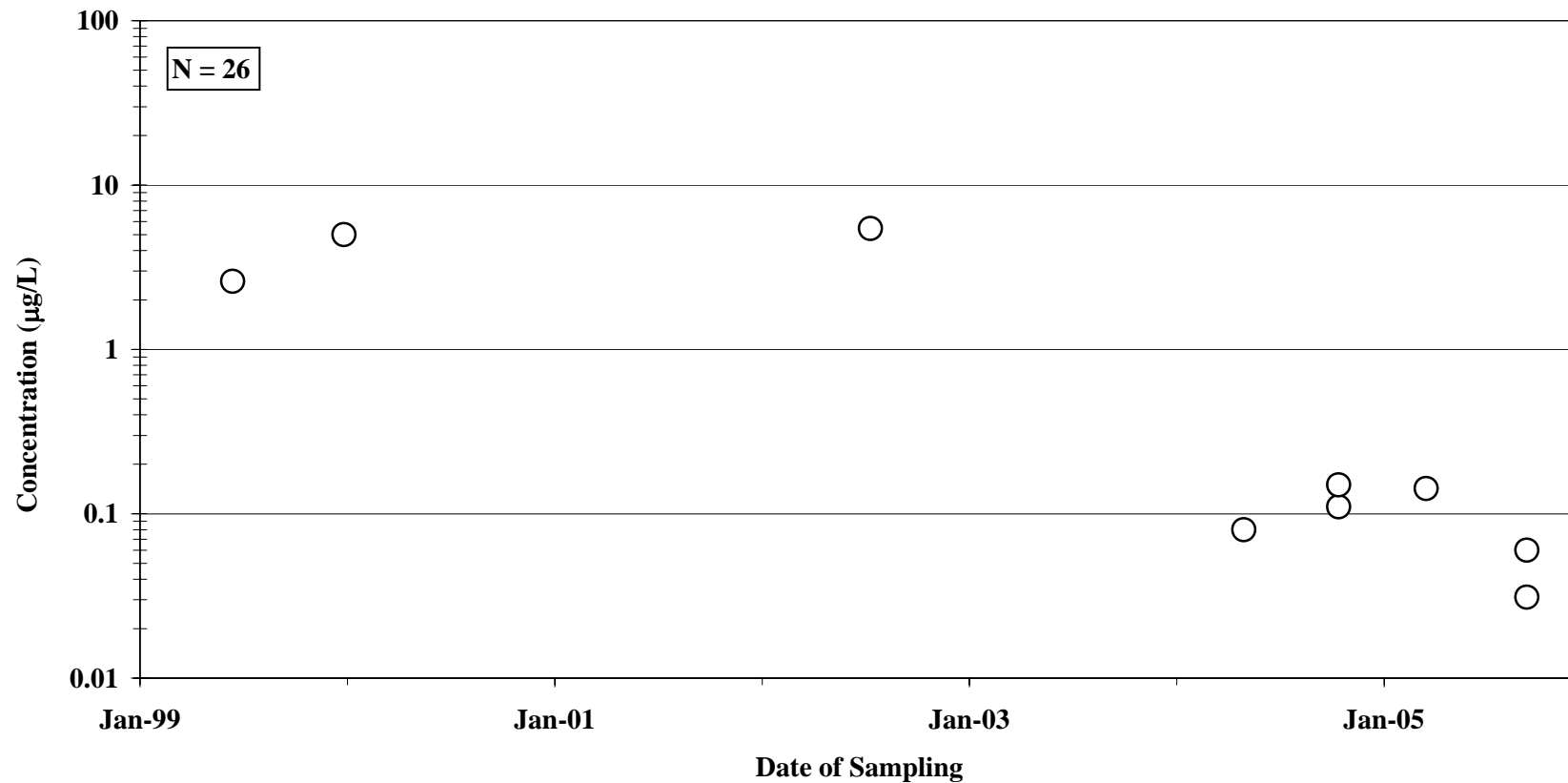


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-29**

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
DISSOLVED COPPER CONCENTRATIONS IN BACKGROUND MONITORING WELL W1-5**

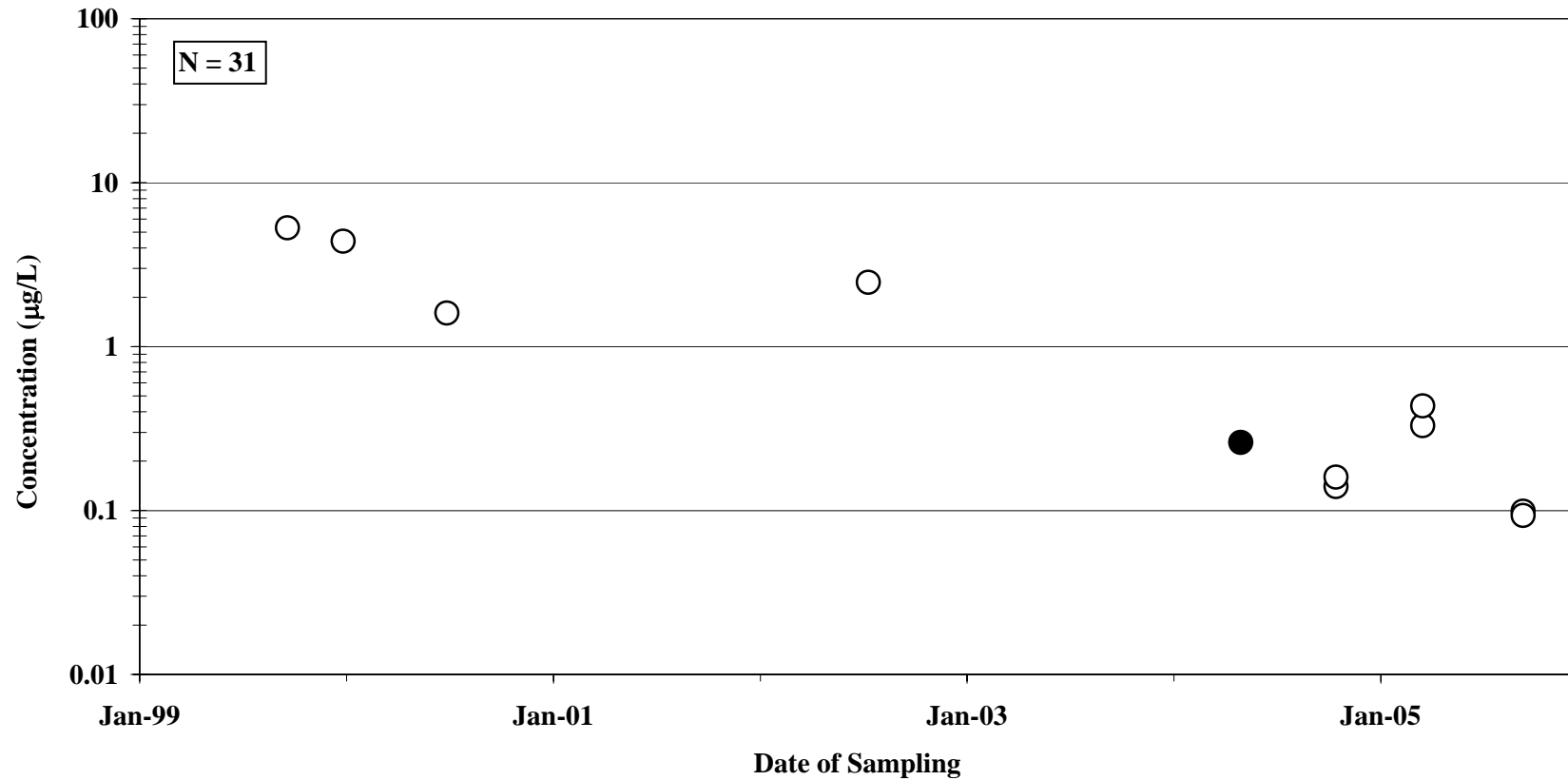


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-30**

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
DISSOLVED COPPER CONCENTRATIONS IN BACKGROUND MONITORING WELL W1-8**

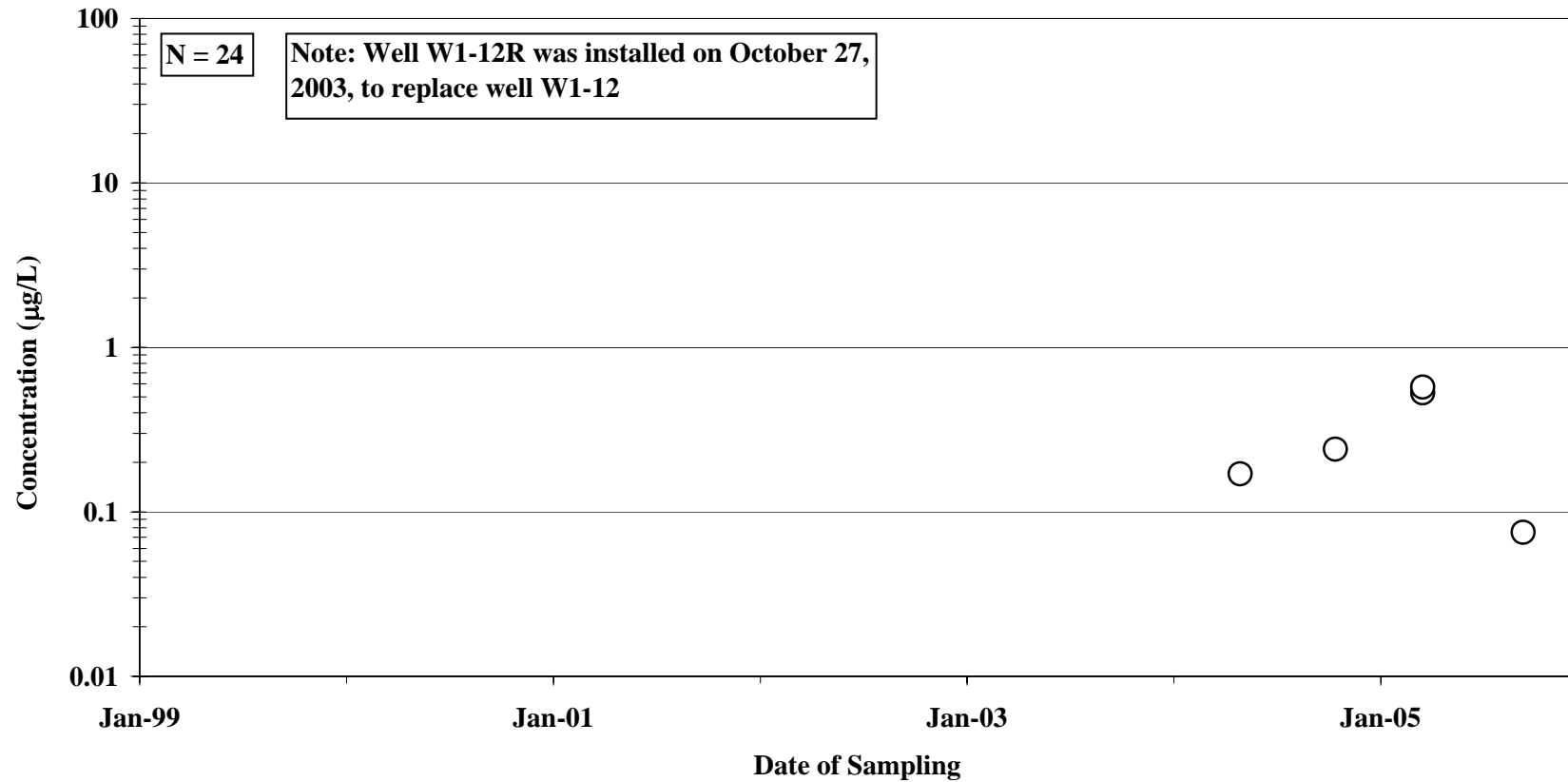


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-31**

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
DISSOLVED COPPER CONCENTRATIONS IN BACKGROUND MONITORING WELL W1-12 / W1-12R**

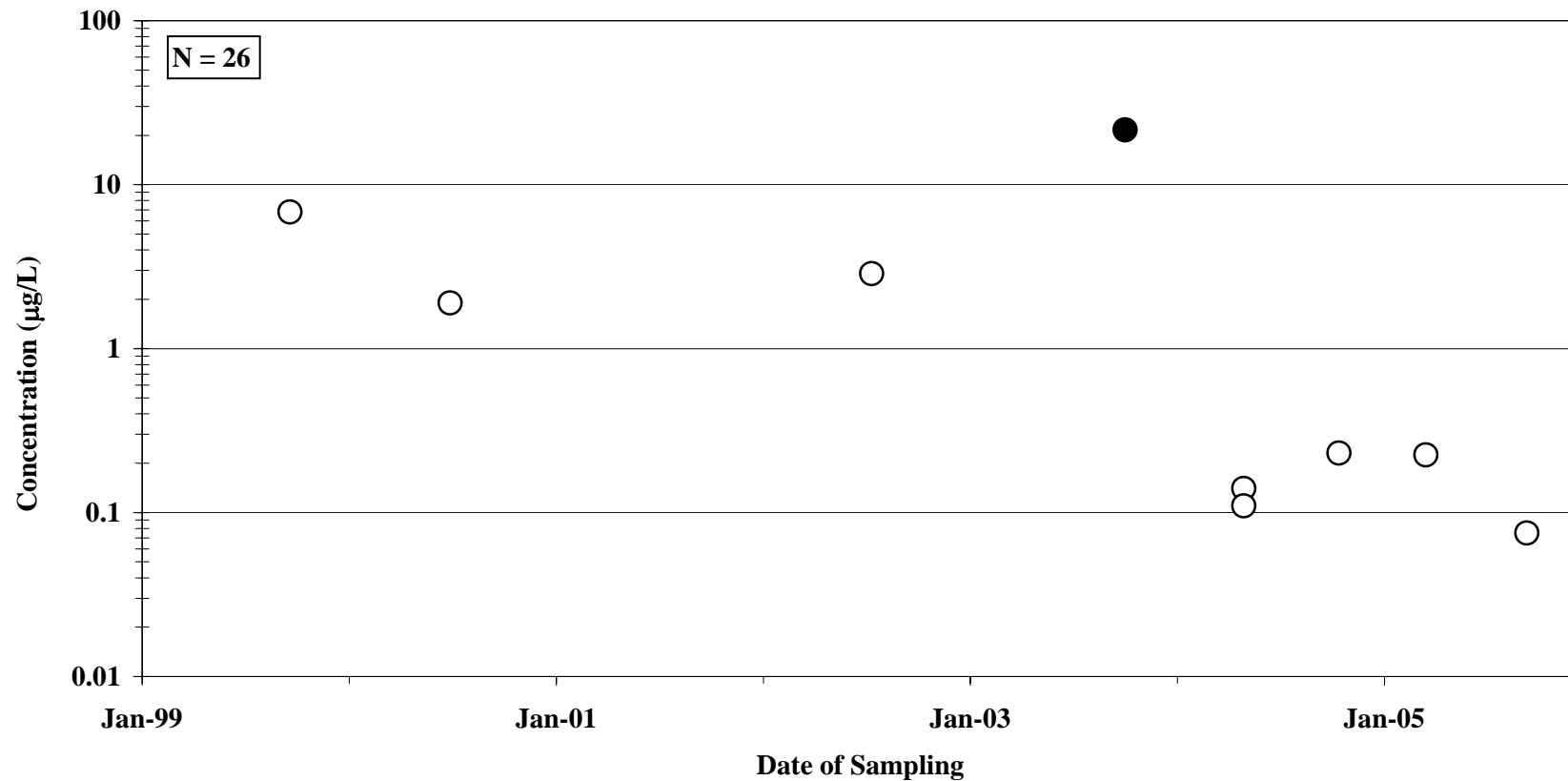


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-32**

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
DISSOLVED COPPER CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-14**

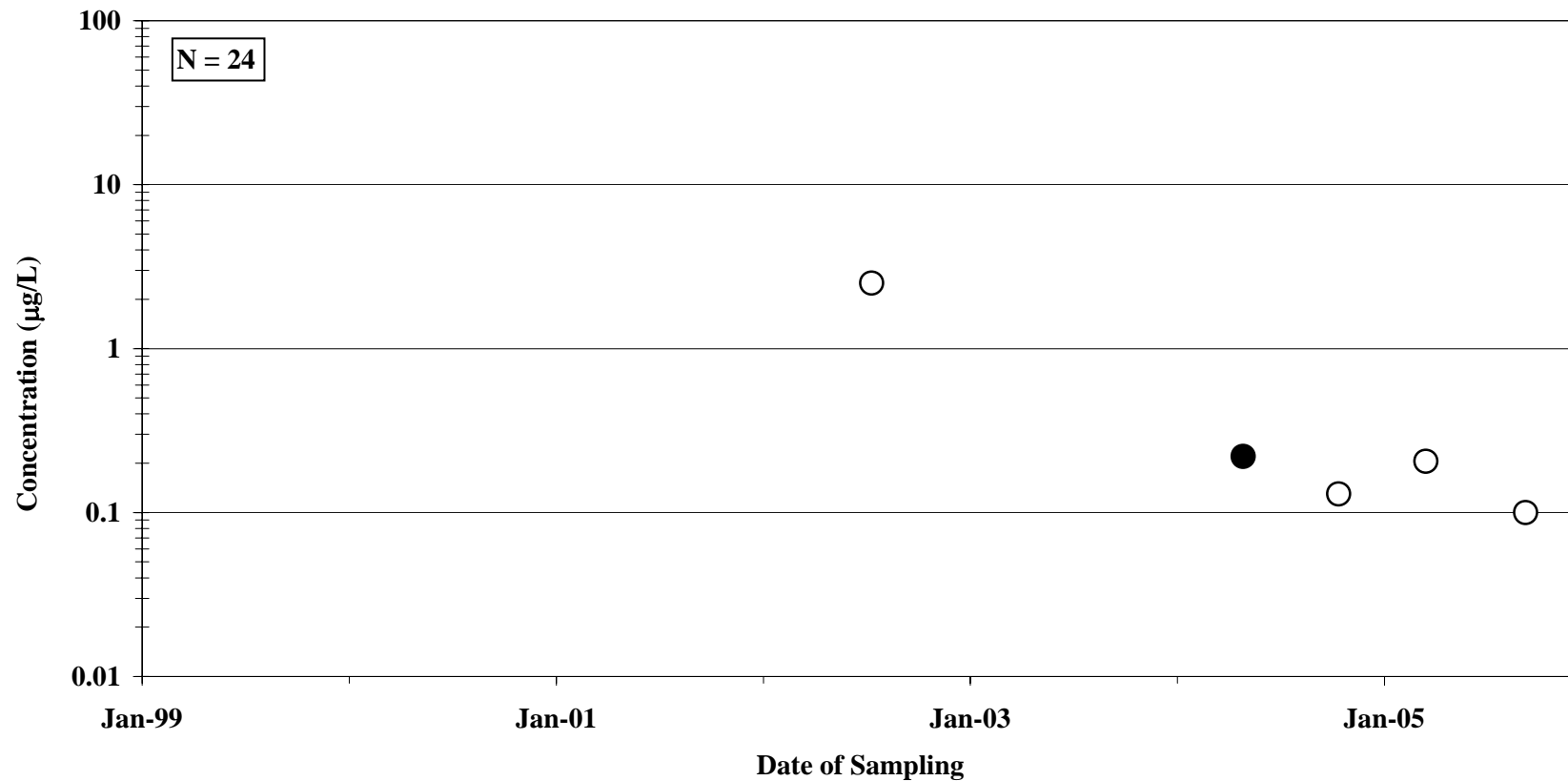


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-33**

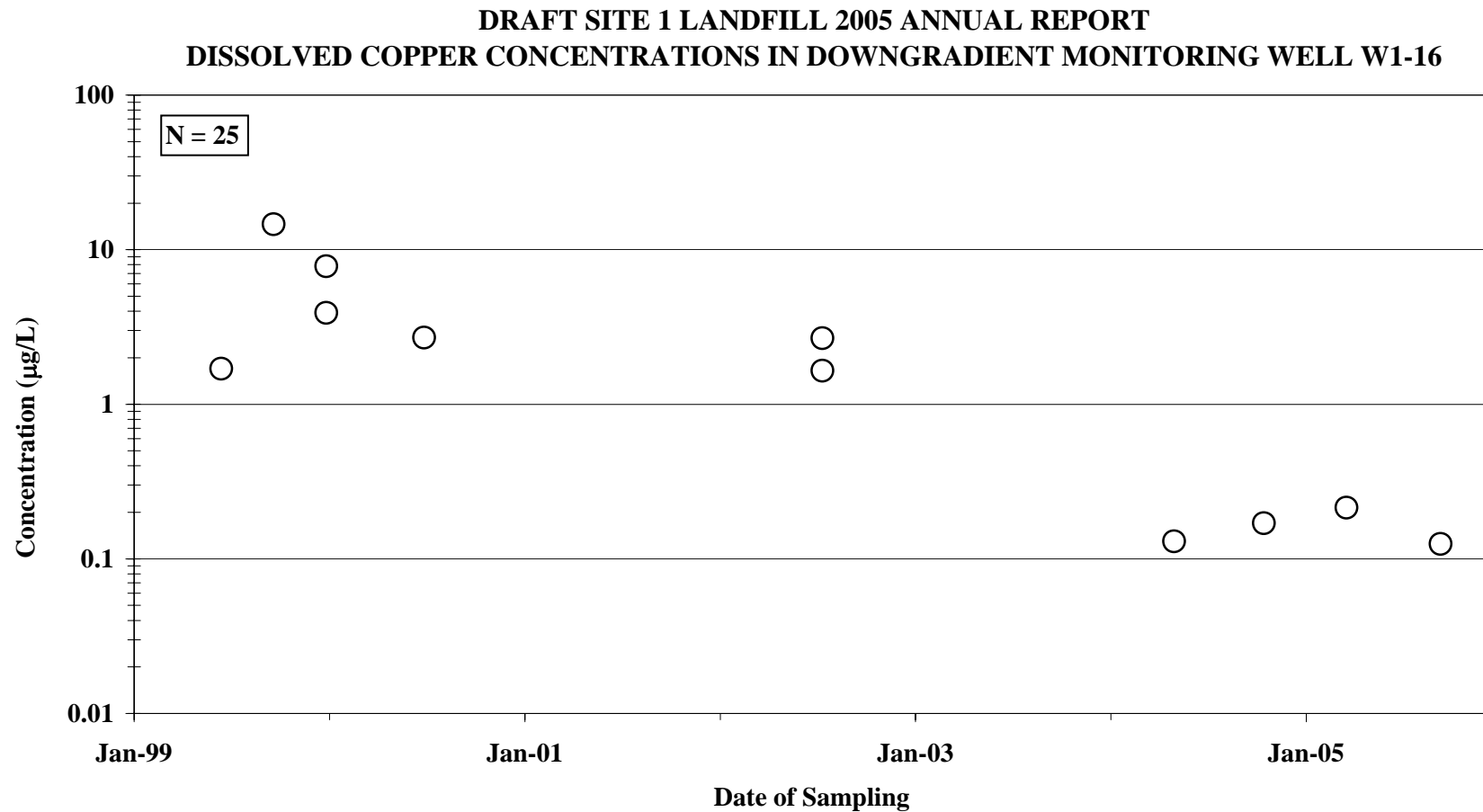
**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
DISSOLVED COPPER CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-15**



**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-34**

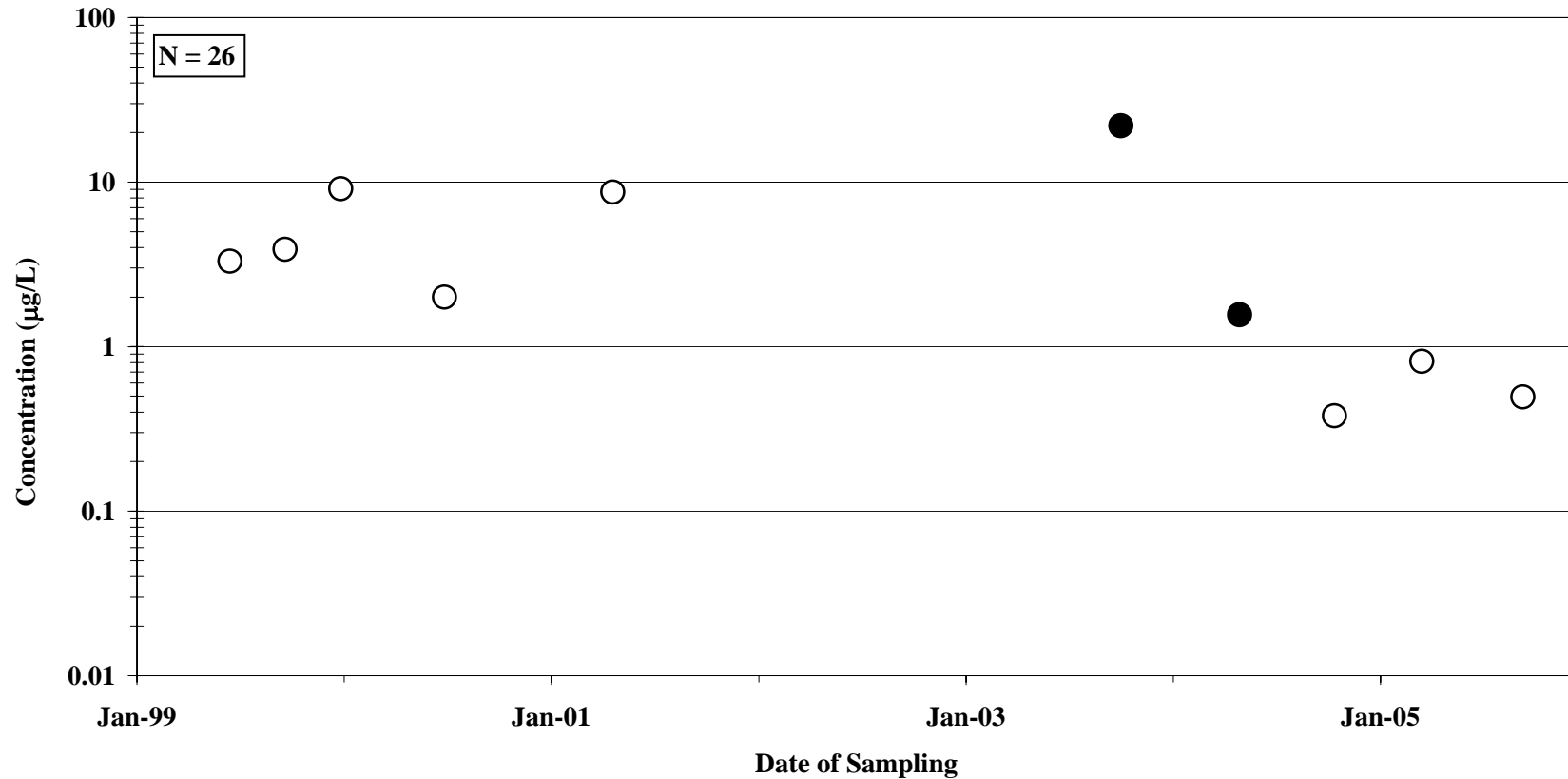


**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

**FIGURE E-35**

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
DISSOLVED COPPER CONCENTRATIONS IN DOWNGRAIDENT MONITORING WELL W1-19**



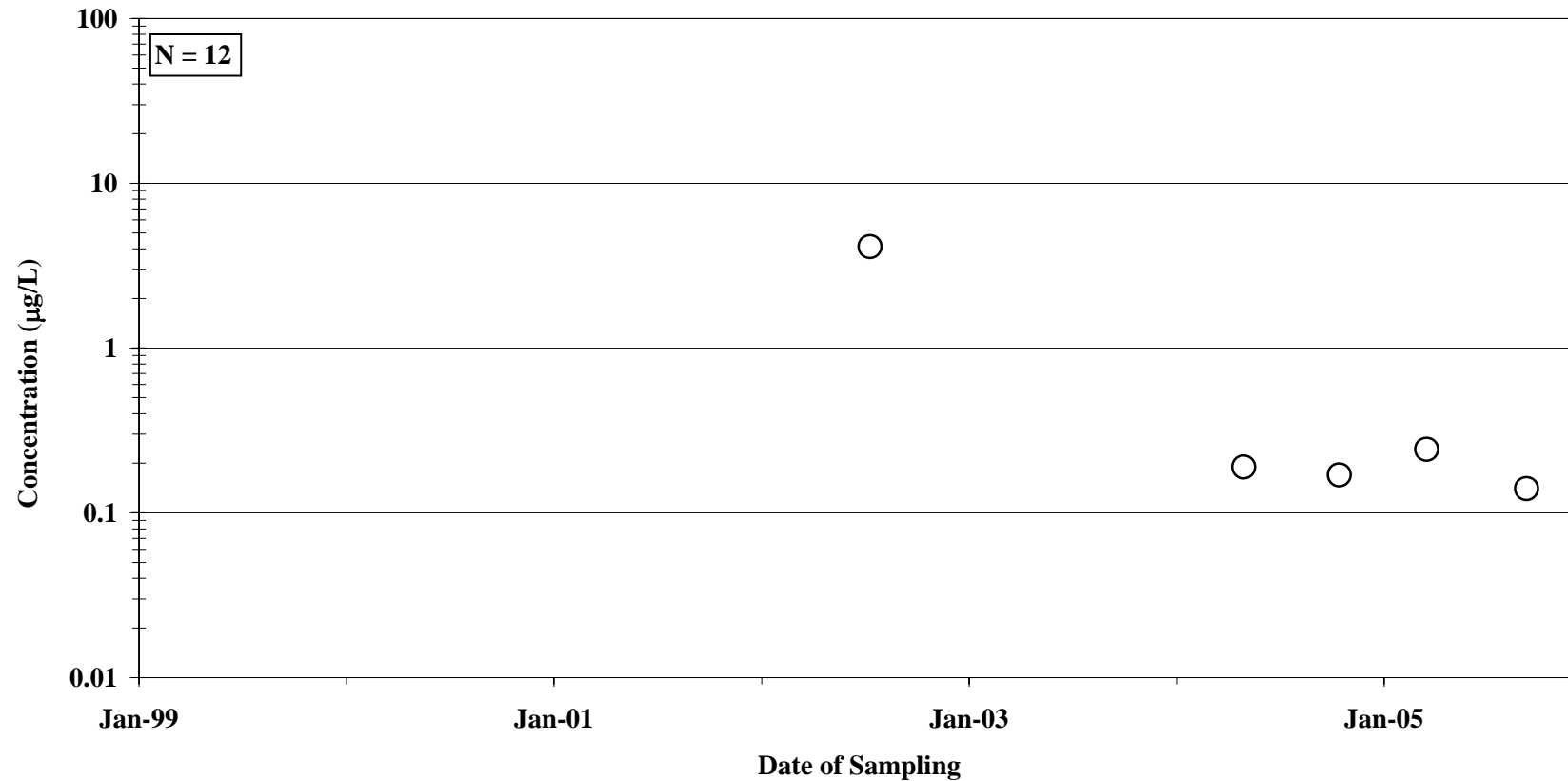
**Notes:**

1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.



**FIGURE E-36**

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
DISSOLVED COPPER CONCENTRATIONS IN DOWNGRADIENT MONITORING WELL W1-24**



**Notes:**

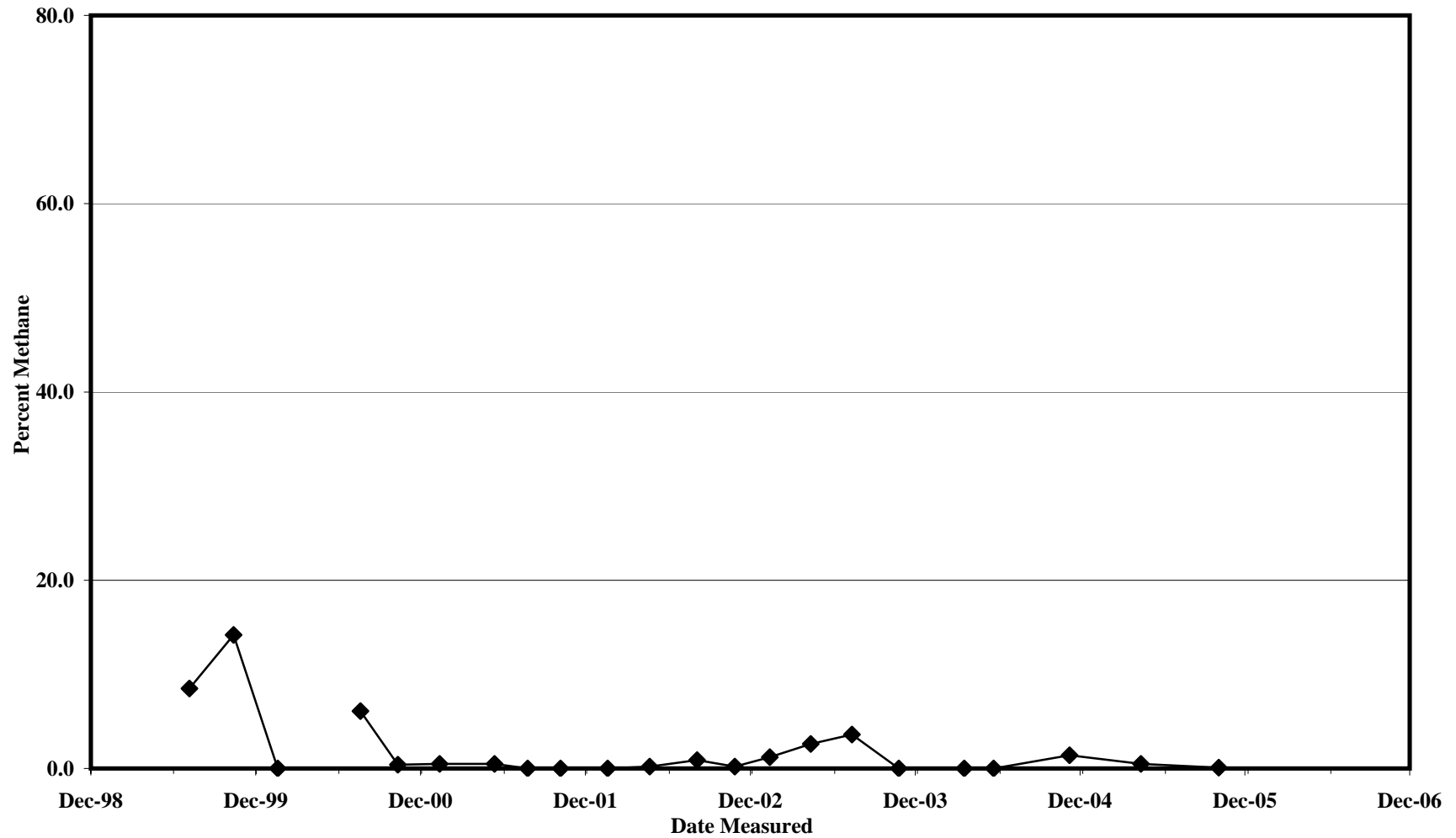
1. Non-detect results are not plotted.
2. Open symbols indicate estimated values.
3. Closed symbols indicate concentrations equal to or greater than the laboratory reporting limit.
4. N = Total number of samples.

## **APPENDIX F**

### **METHANE MONITORING DATA GRAPHS**

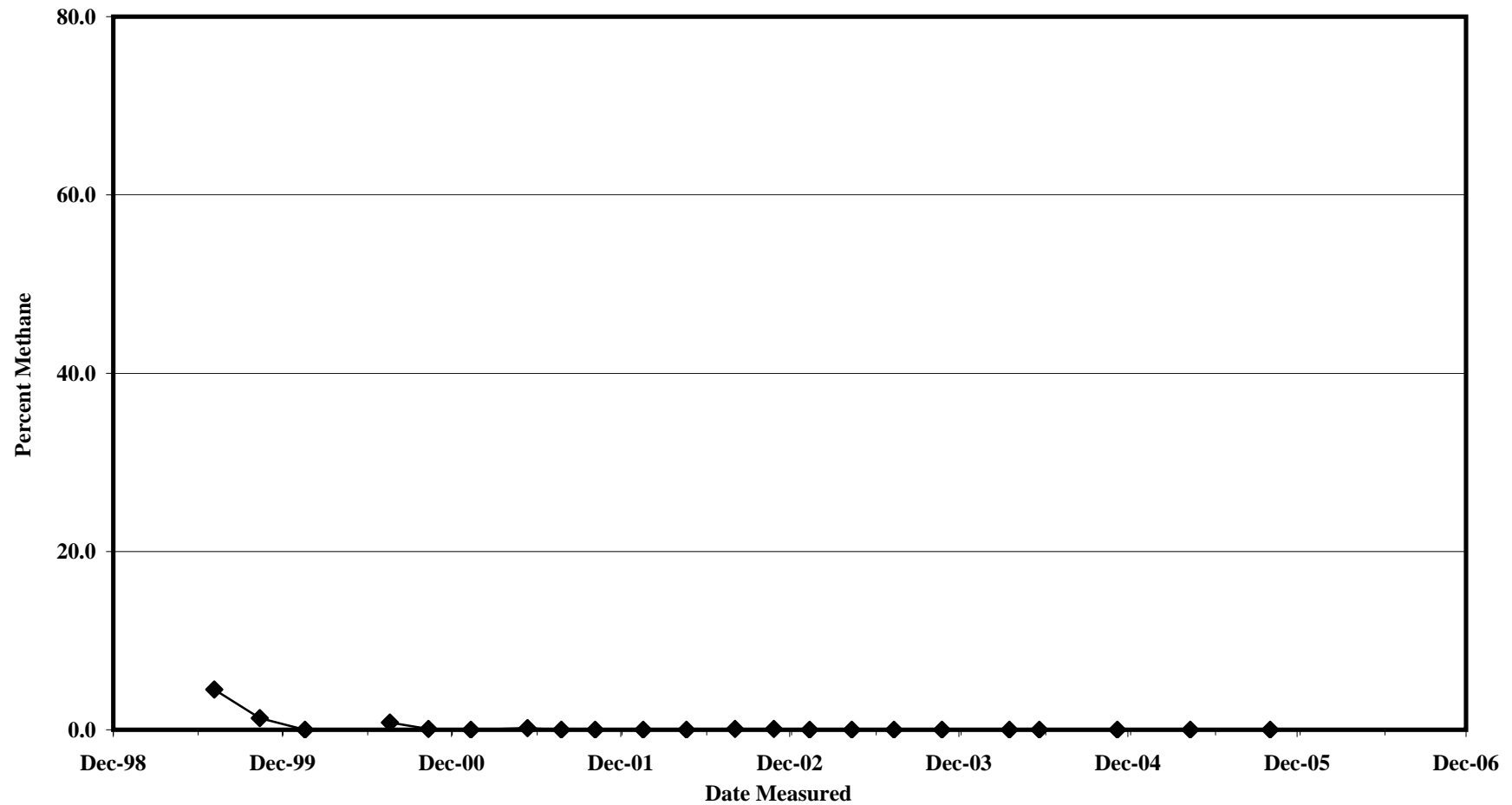
**FIGURE F-1**

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
TIME SERIES OF PERCENT METHANE PLOT, PASSIVE GAS VENT GV-1**



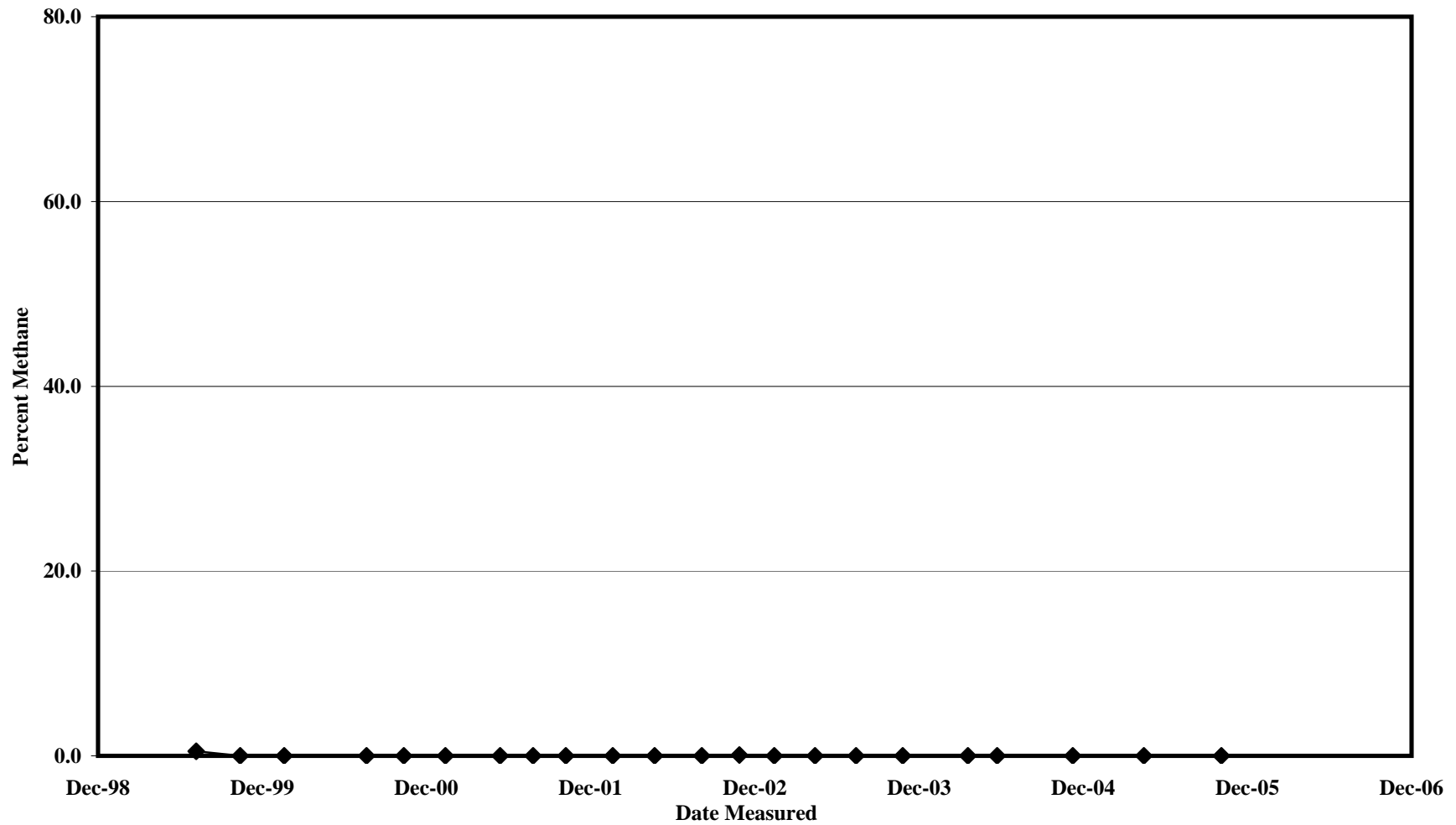
**FIGURE F-2**

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
TIME SERIES OF PERCENT METHANE PLOT, PASSIVE GAS VENT GV-2**



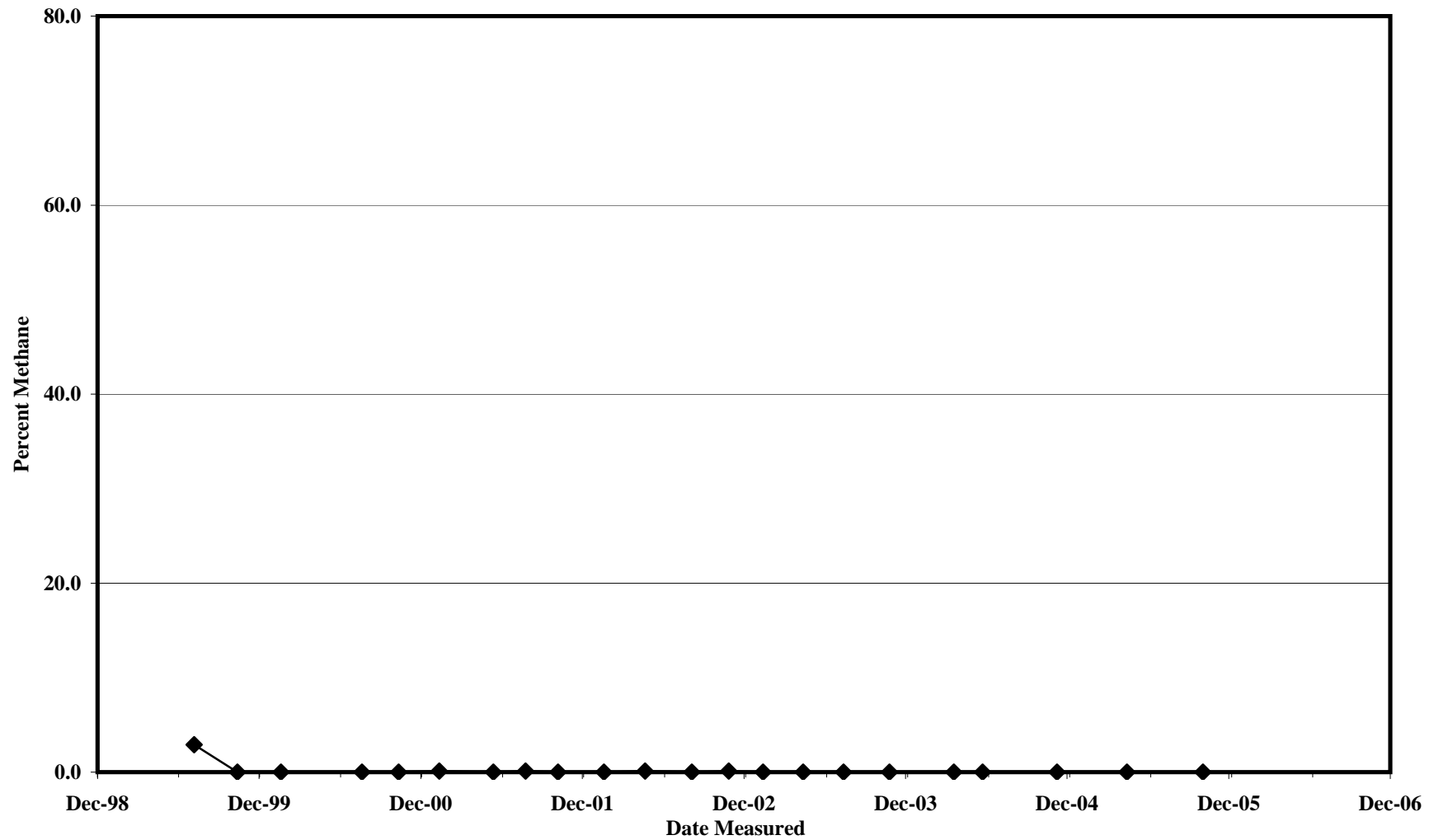
**FIGURE F-3**

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
TIME SERIES OF PERCENT METHANE PLOT, PASSIVE GAS VENT GV-3**



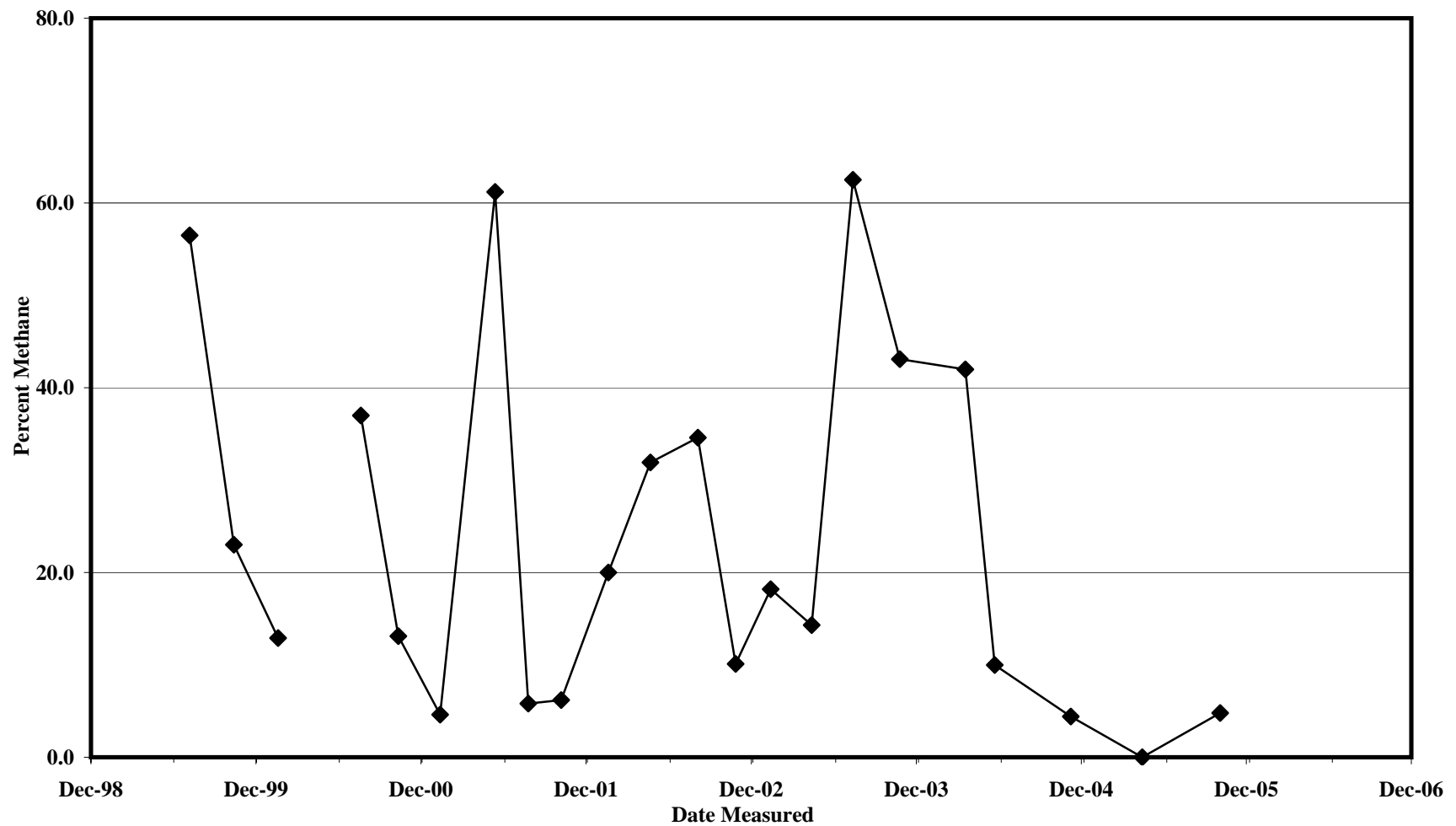
**FIGURE F-4**

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
TIME SERIES OF PERCENT METHANE PLOT, PASSIVE GAS VENT GV-4**



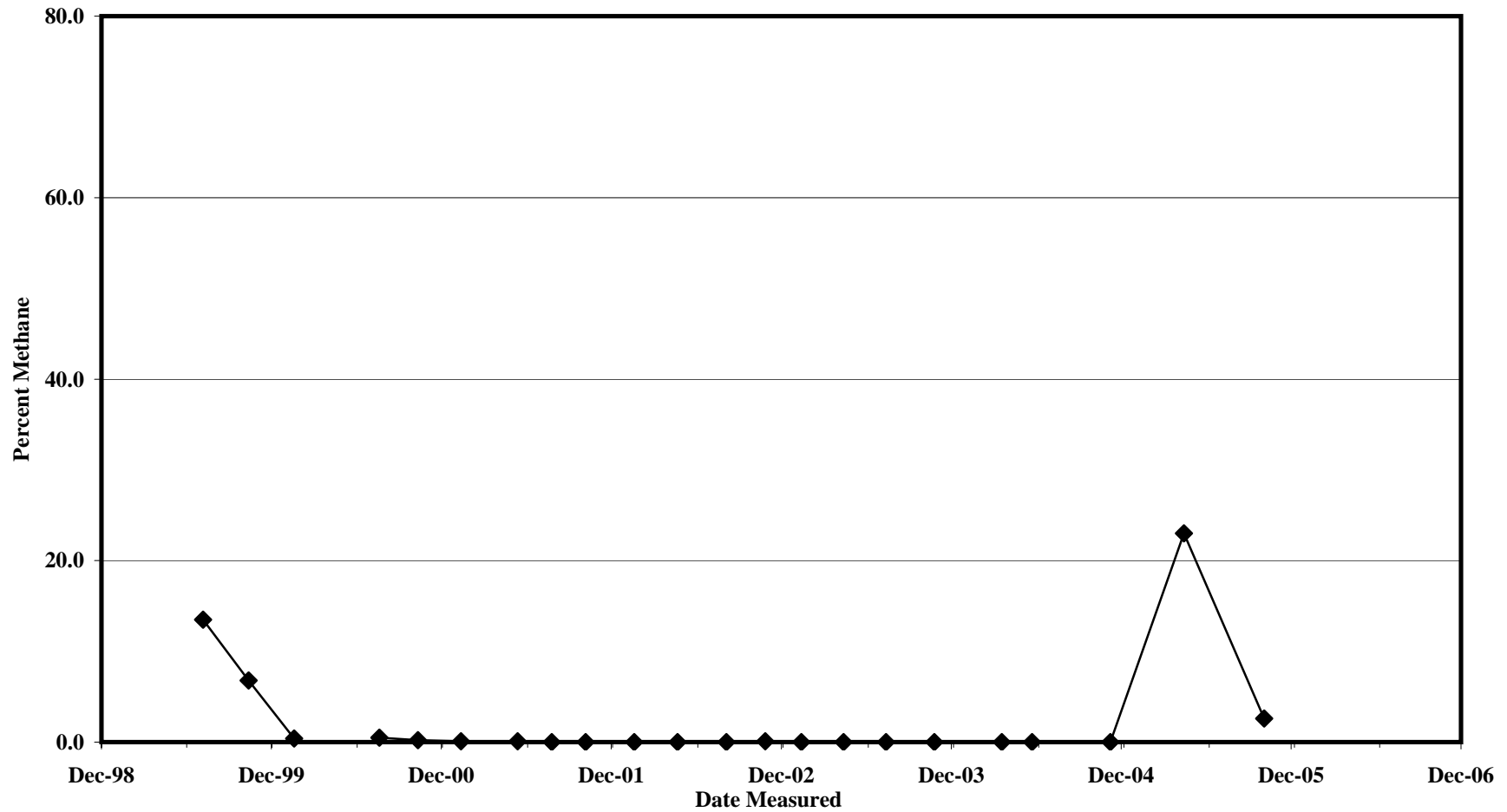
**FIGURE F-5**

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
TIME SERIES OF PERCENT METHANE PLOT, PASSIVE GAS VENT GV-5**



**FIGURE F-6**

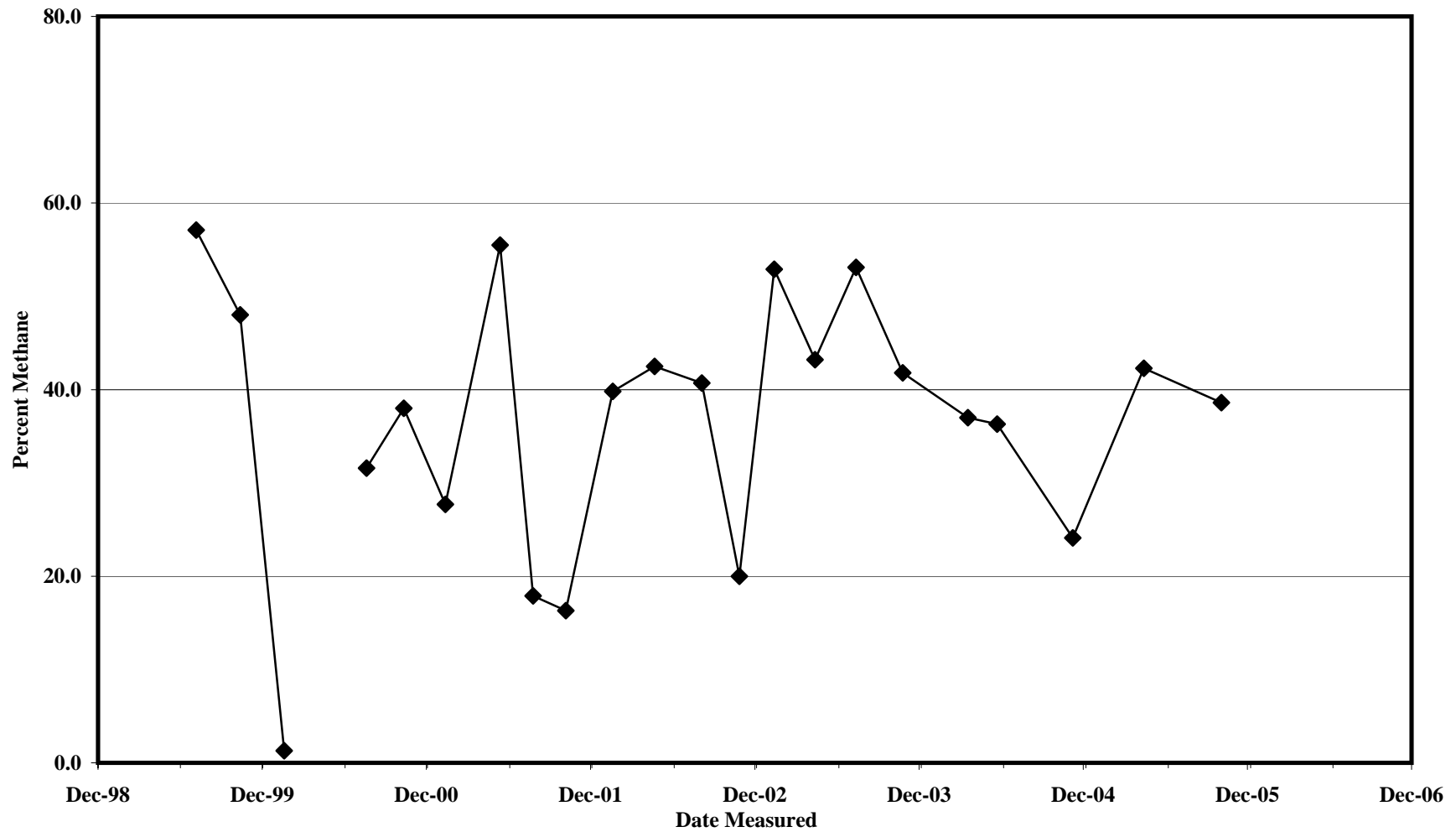
**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
TIME SERIES OF PERCENT METHANE PLOT, PASSIVE GAS VENT GV-6**





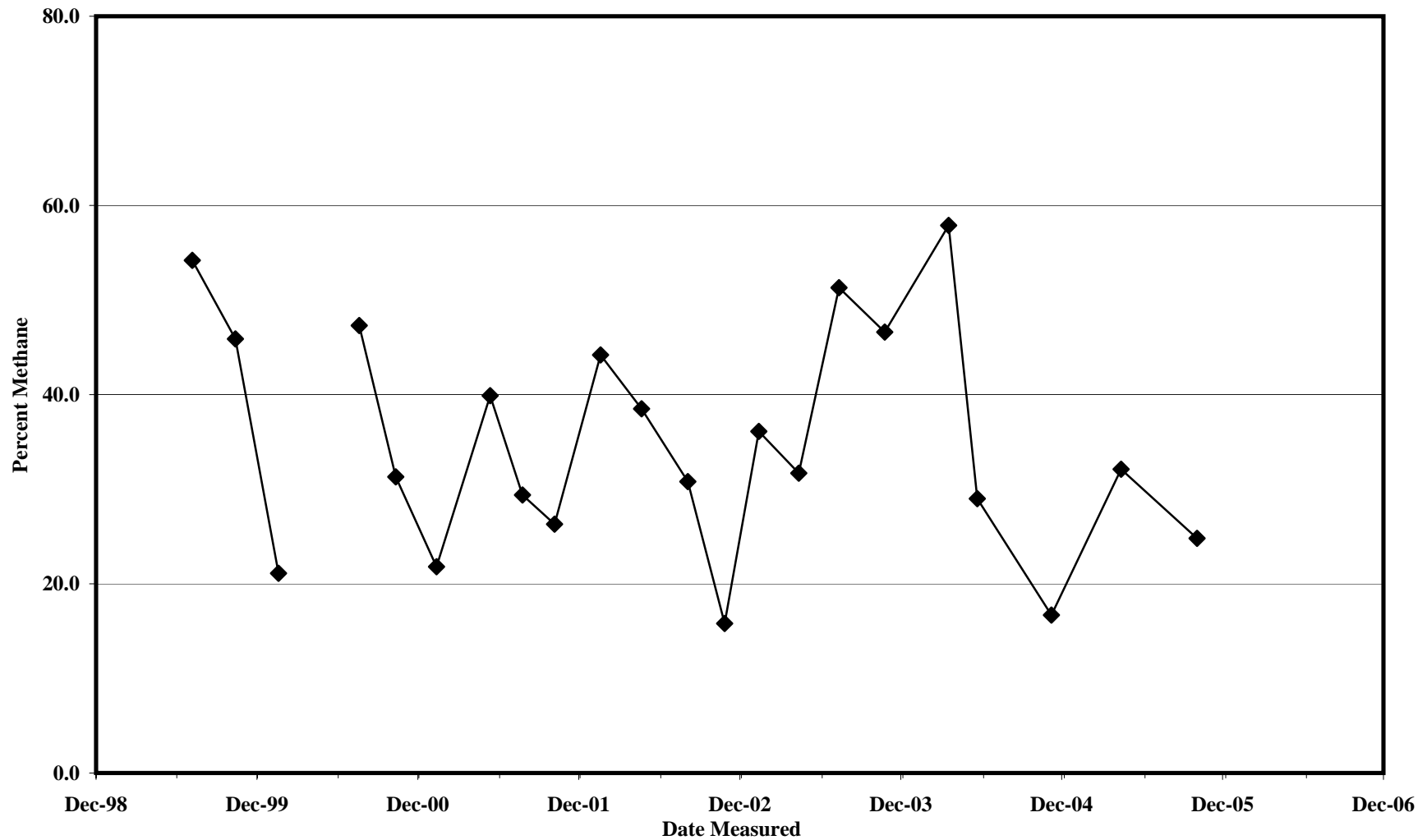
**FIGURE F-7**

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
TIME SERIES OF PERCENT METHANE PLOT, PASSIVE GAS VENT GV-7**



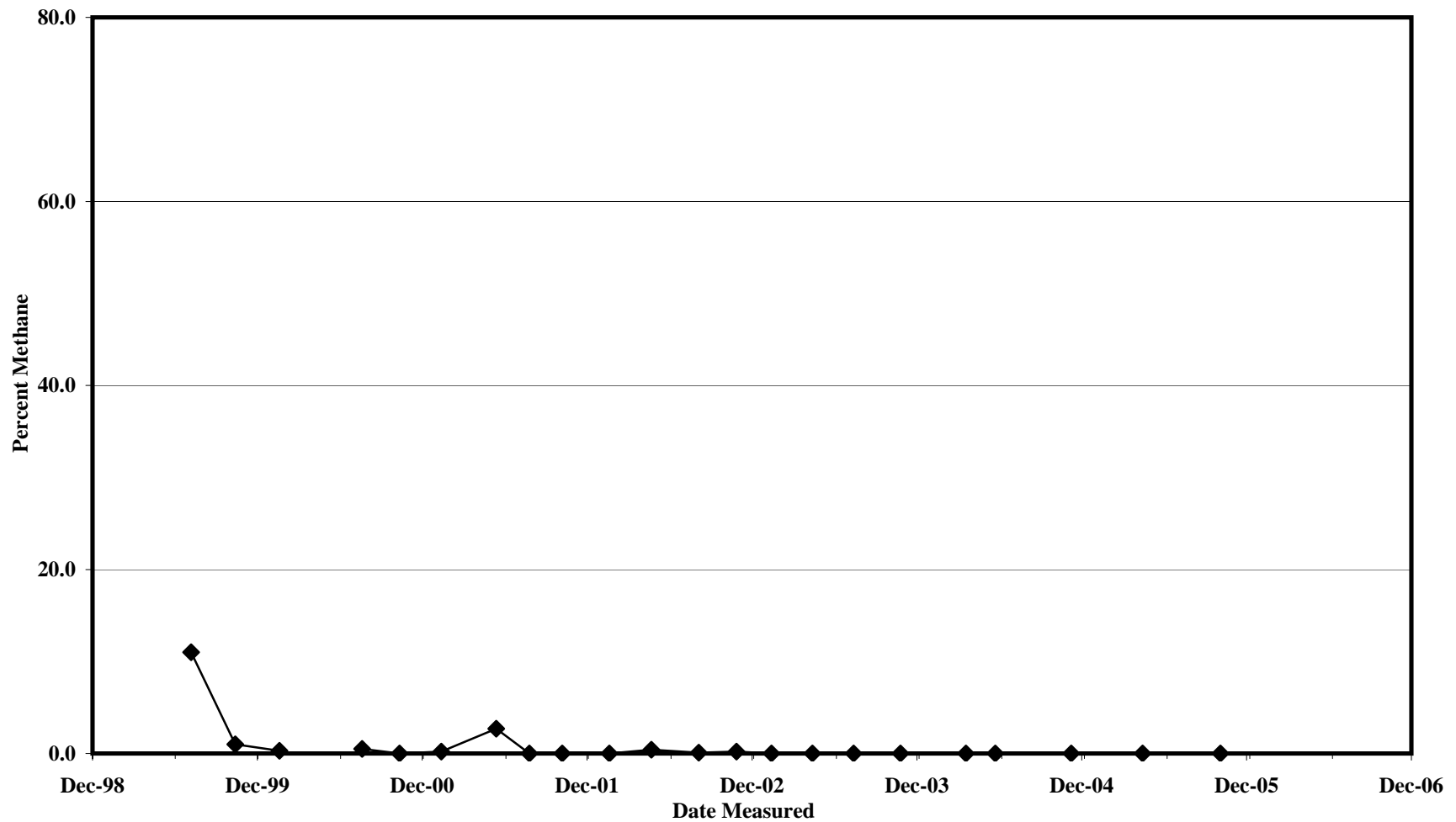
**FIGURE F-8**

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
TIME SERIES OF PERCENT METHANE PLOT, PASSIVE GAS VENT GV-8**



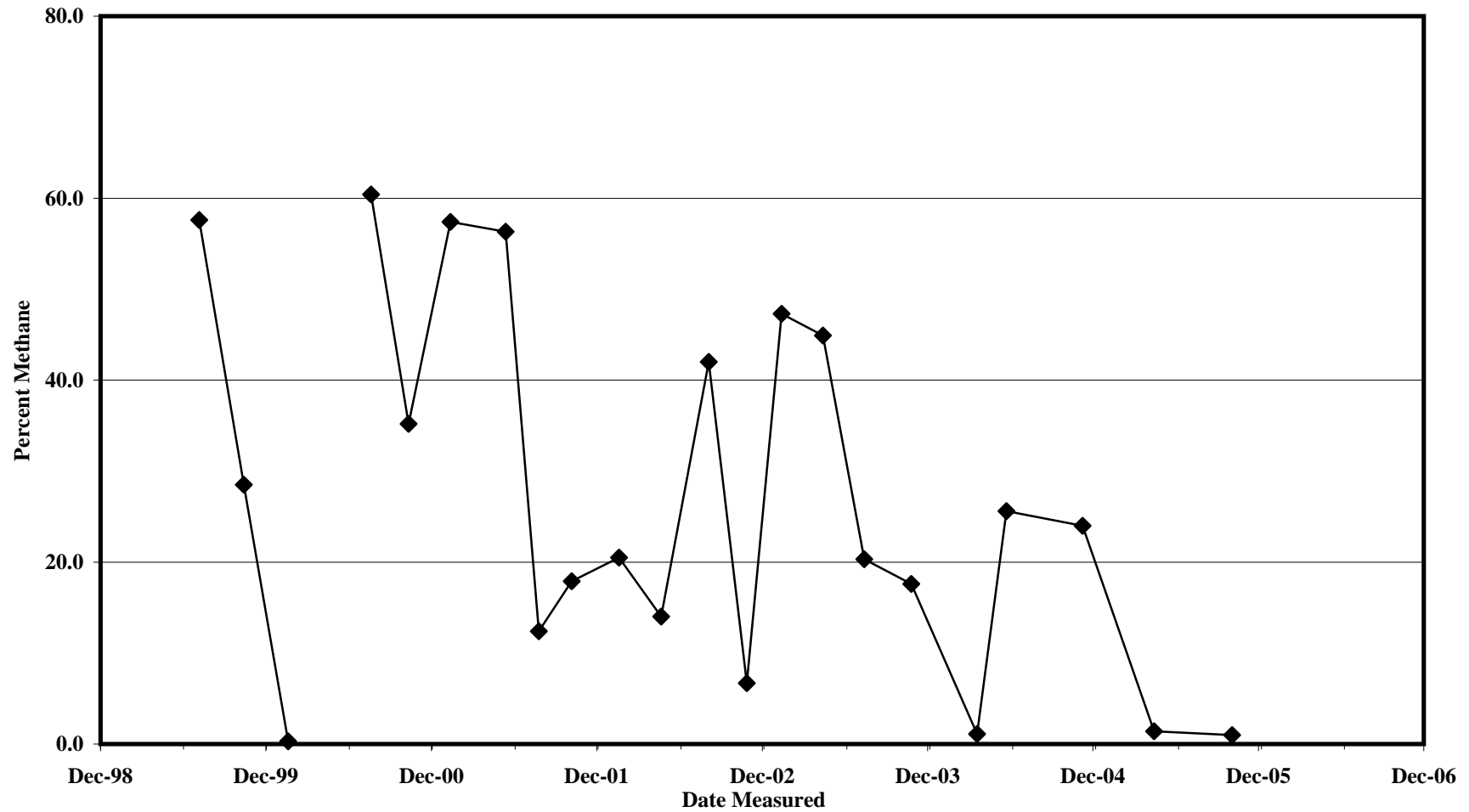
**FIGURE F-9**

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
TIME SERIES OF PERCENT METHANE PLOT, PASSIVE GAS VENT GV-9**



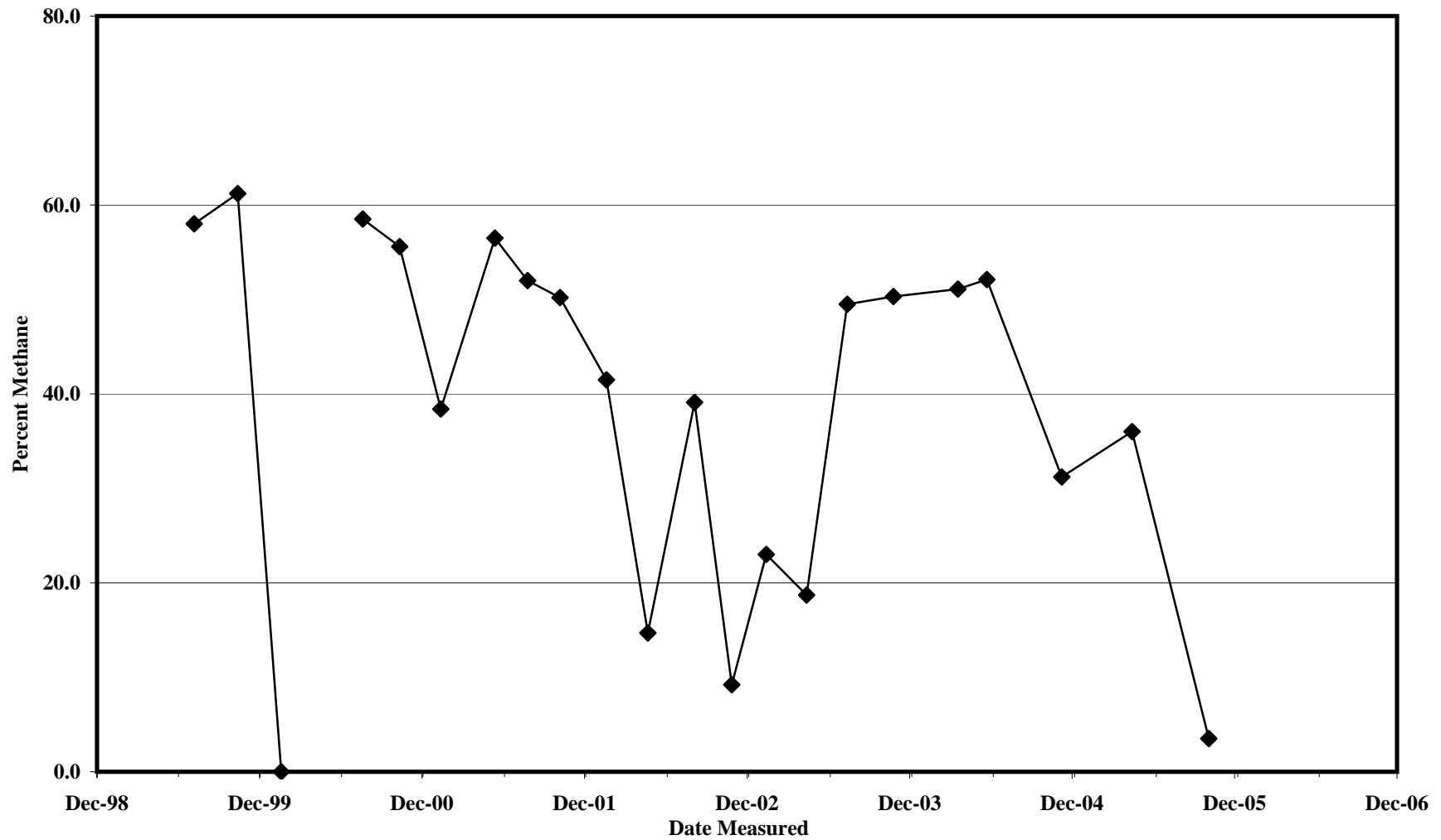
**FIGURE F-10**

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
TIME SERIES OF PERCENT METHANE PLOT, PASSIVE GAS VENT GV-10**



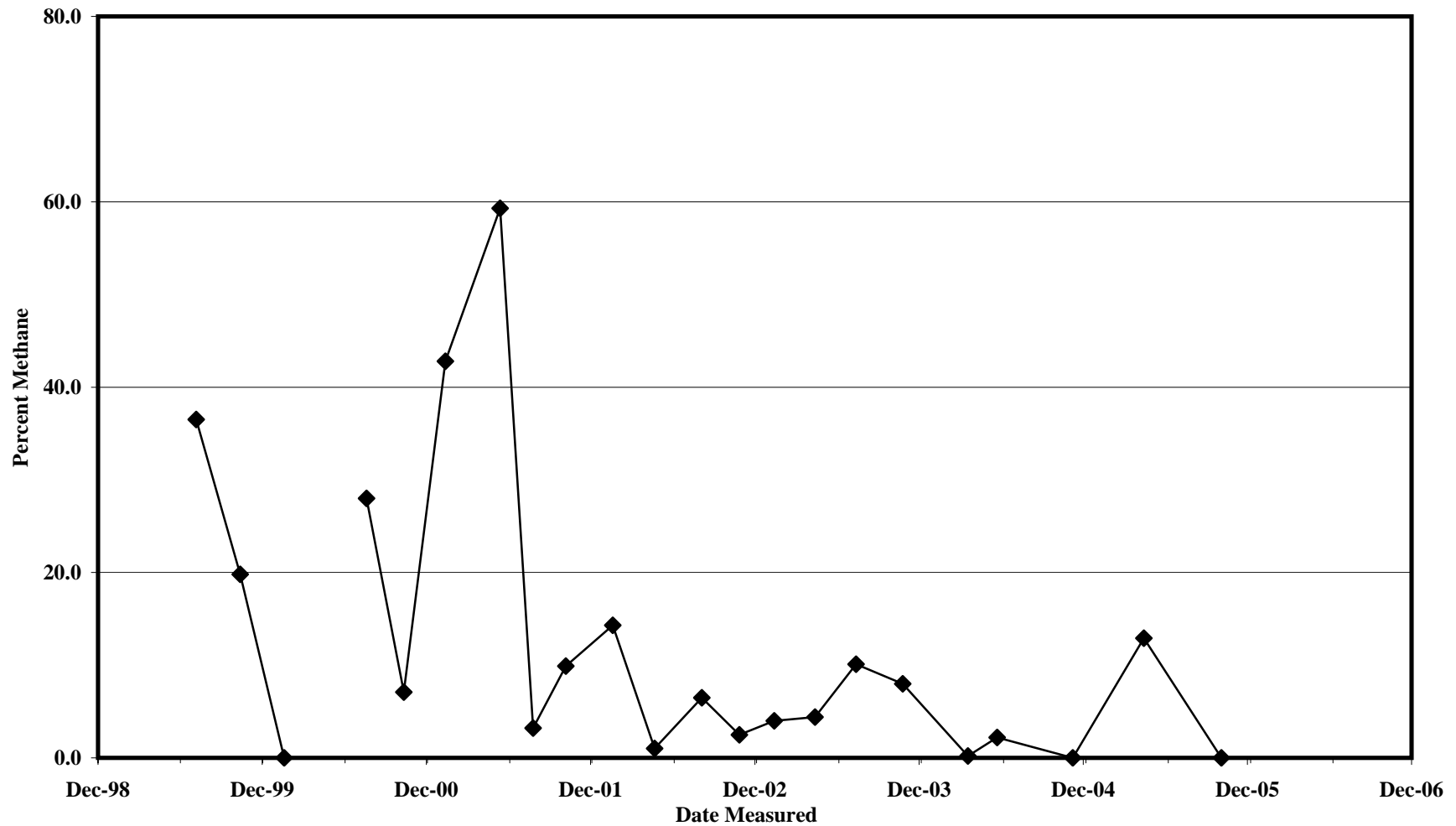
**FIGURE F-11**

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
TIME SERIES OF PERCENT METHANE PLOT, PASSIVE GAS VENT GV-11**



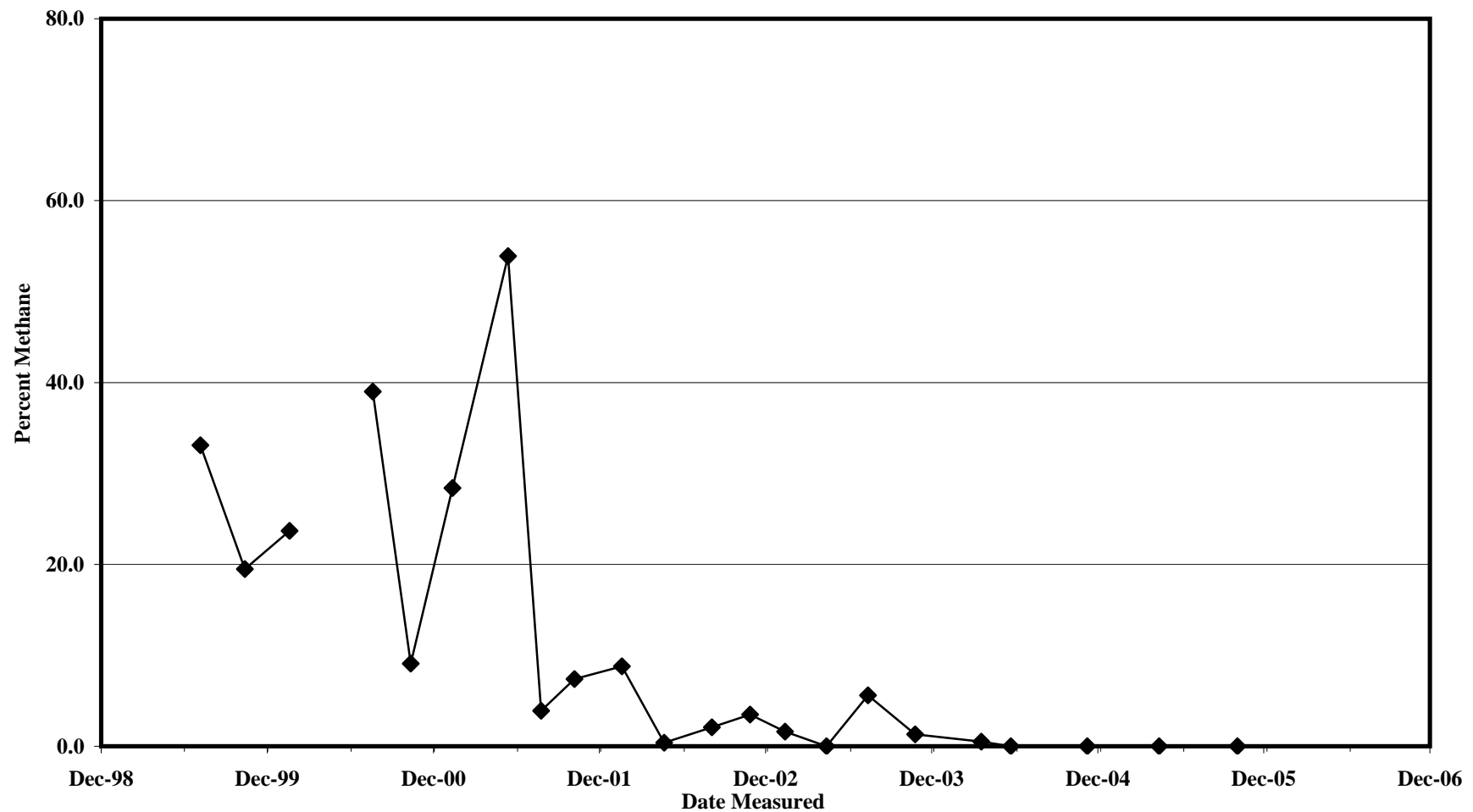
**FIGURE F-12**

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
TIME SERIES OF PERCENT METHANE PLOT, PASSIVE GAS VENT GV-12**

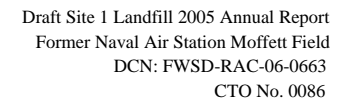


**FIGURE F-13**

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
TIME SERIES OF PERCENT METHANE PLOT, PASSIVE GAS VENT GV-13**



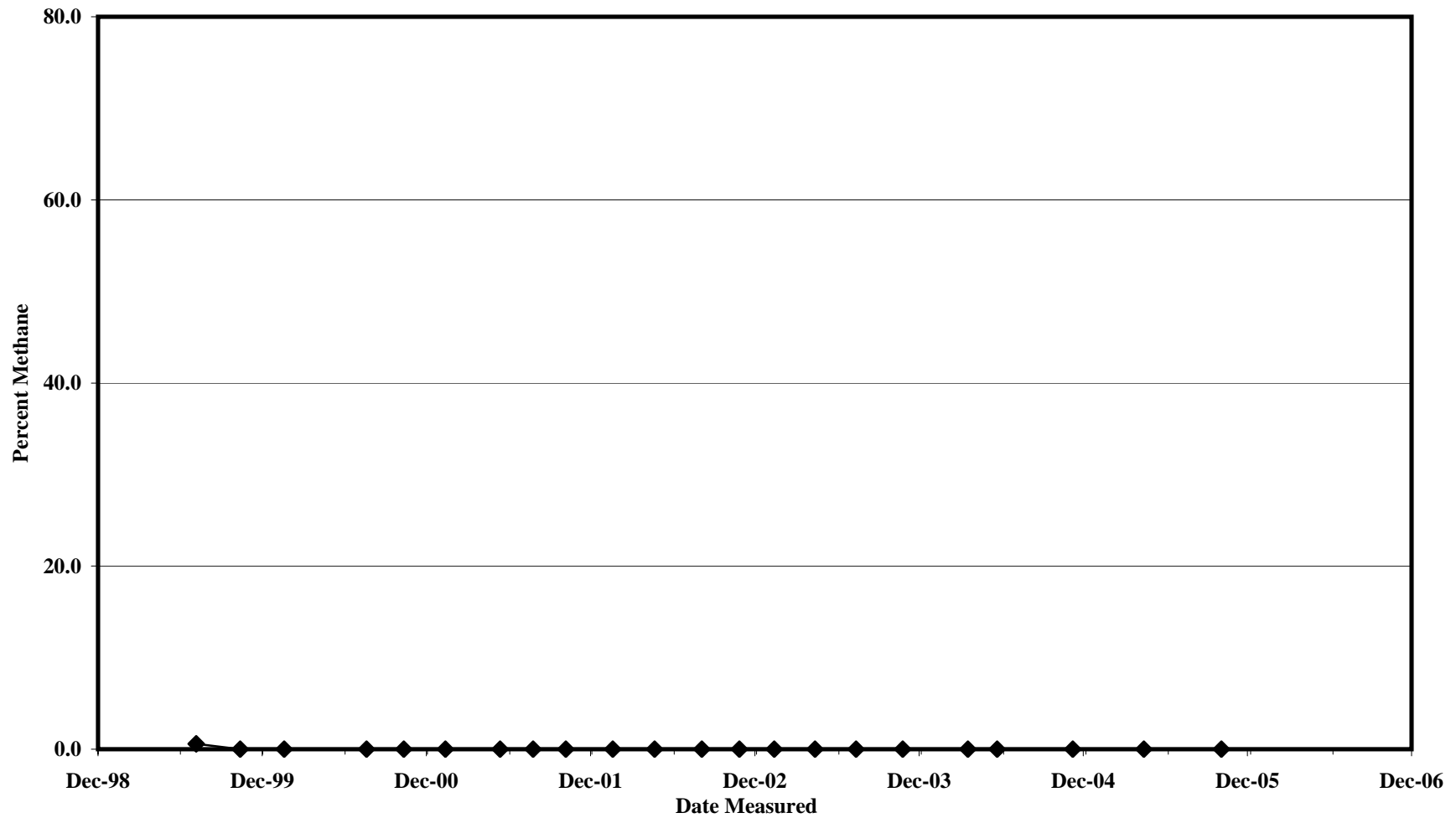
**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT**  
**TIME SERIES OF PERCENT METHANE PLOT, PASSIVE GAS VENT GV-14**





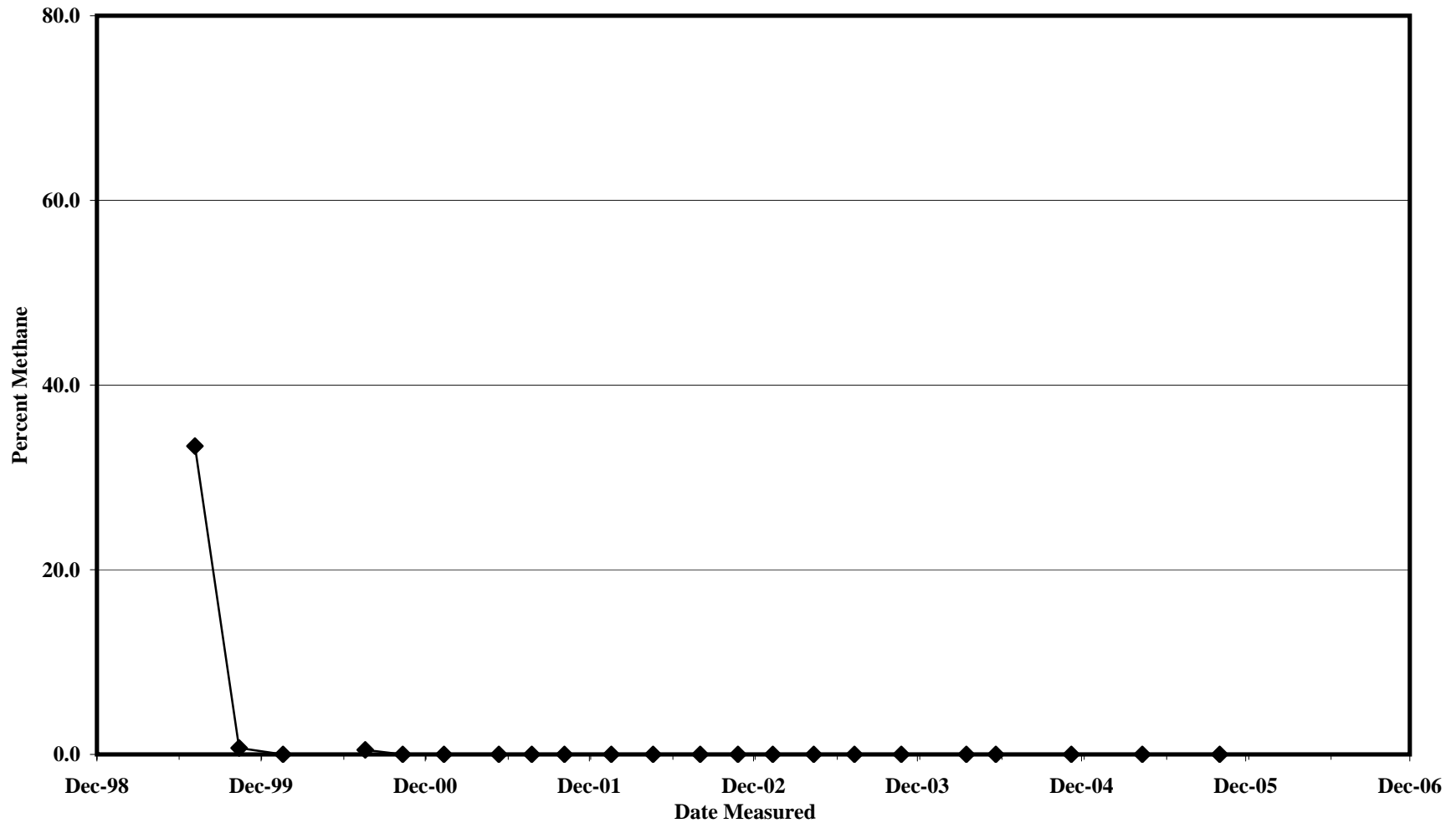
**FIGURE F-15**

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
TIME SERIES OF PERCENT METHANE PLOT, PASSIVE GAS VENT GV-15**

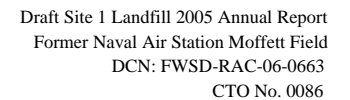


**FIGURE F-16**

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
TIME SERIES OF PERCENT METHANE PLOT, PASSIVE GAS VENT GV-16**

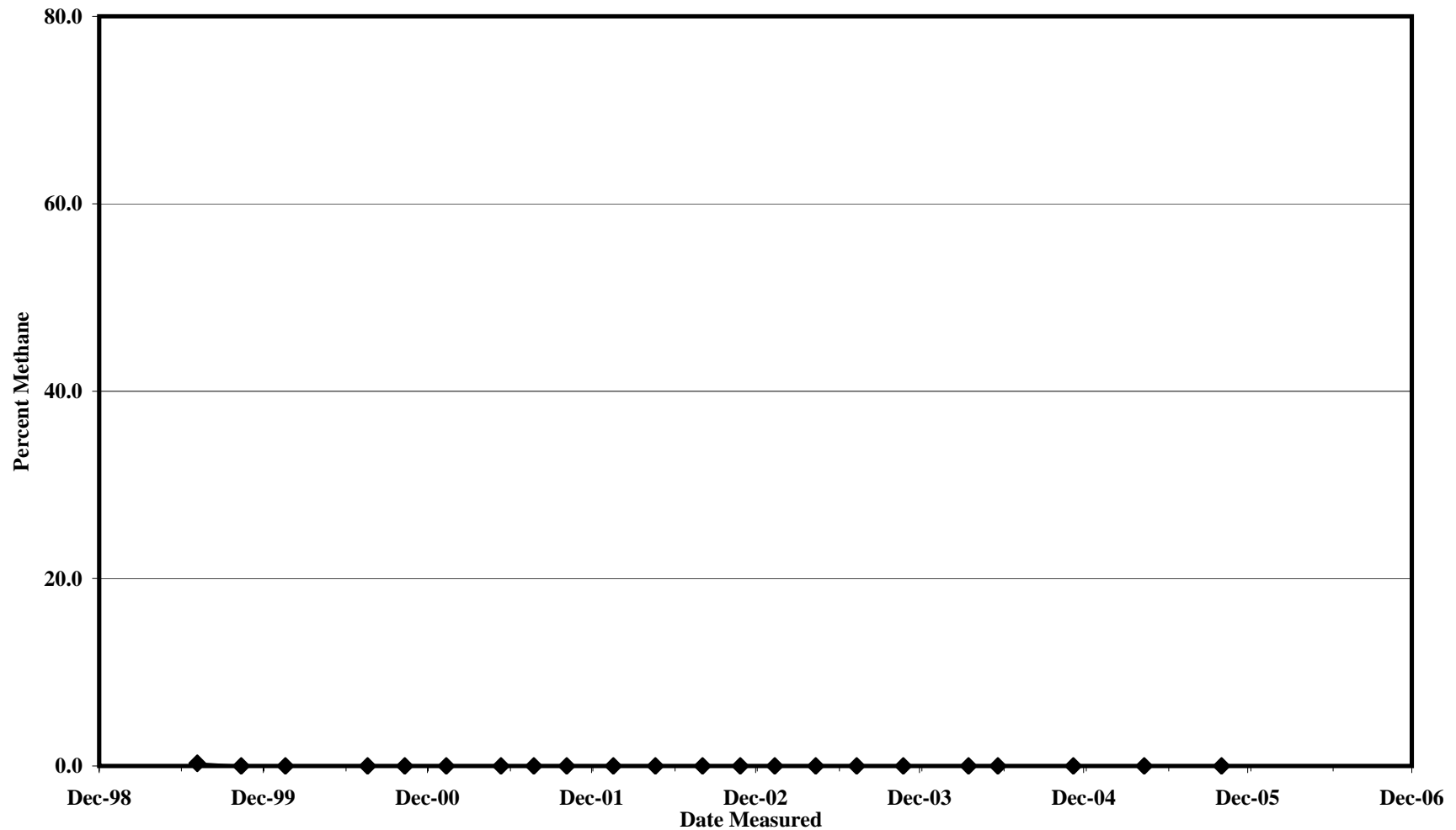


**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT**  
**TIME SERIES OF PERCENT METHANE PLOT, PASSIVE GAS VENT GV-17**



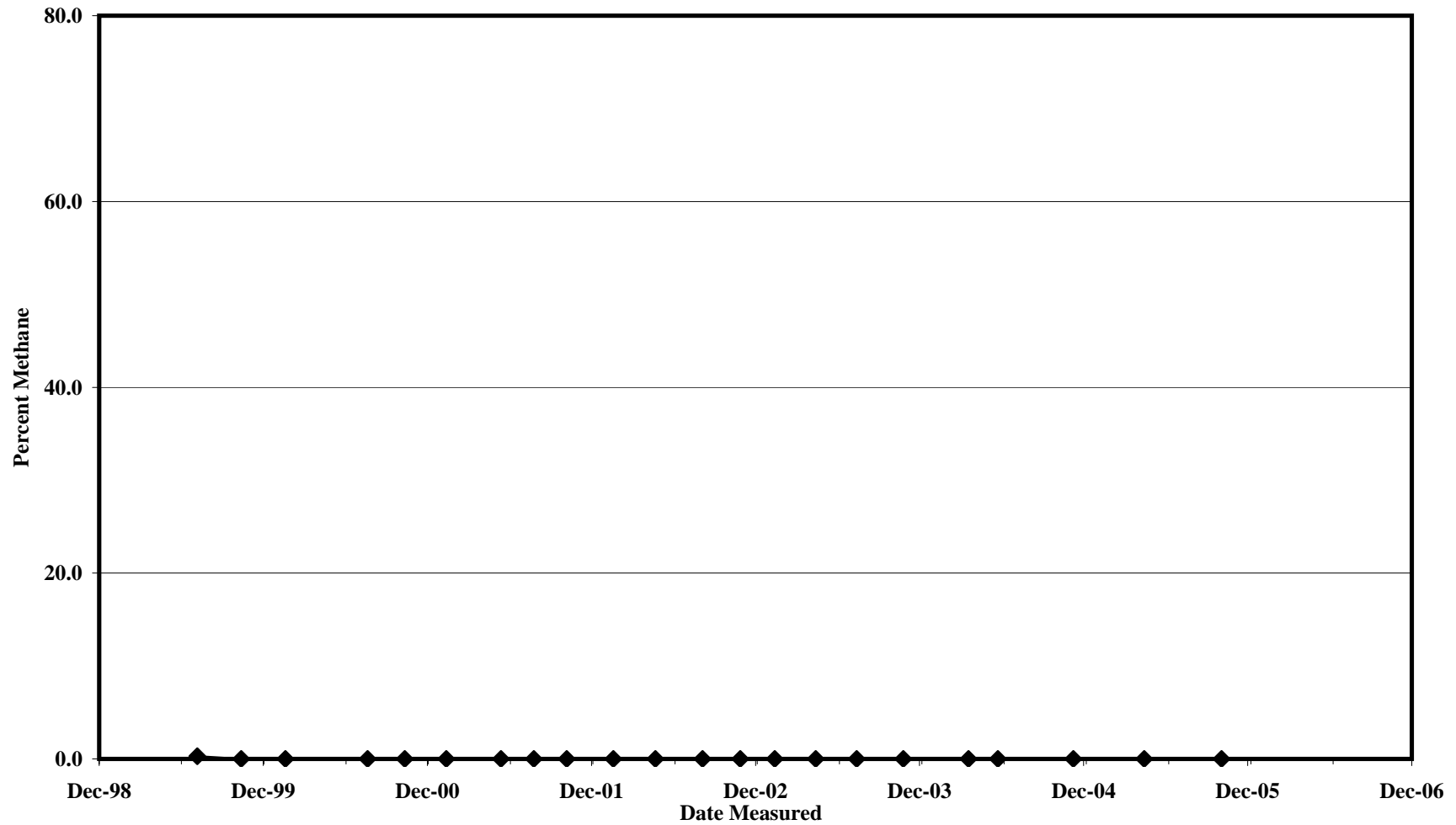
**FIGURE F-18**

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
TIME SERIES OF PERCENT METHANE PLOT, PASSIVE GAS VENT GV-18**



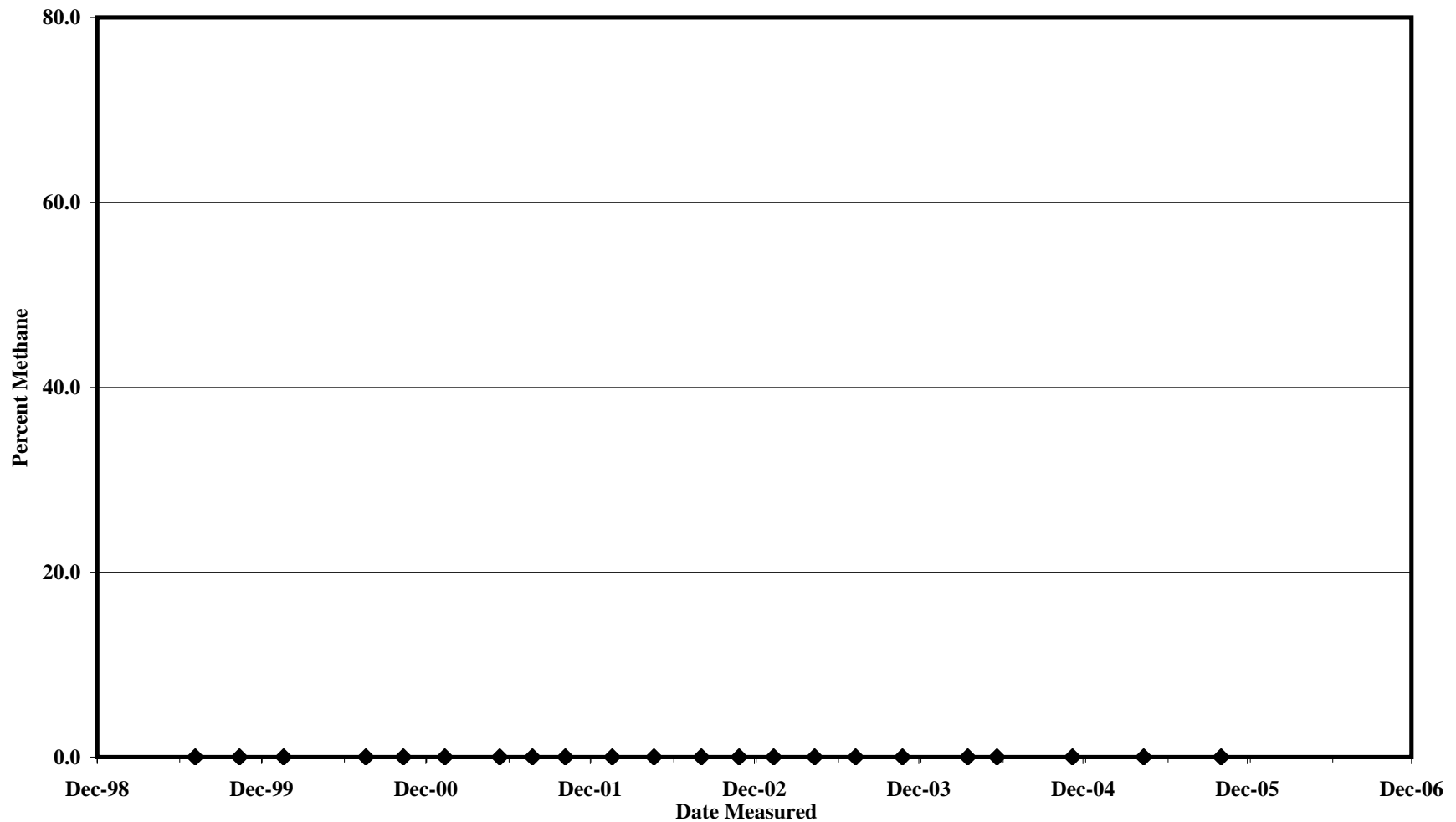
**FIGURE F-19**

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
TIME SERIES OF PERCENT METHANE PLOT, PASSIVE GAS VENT GV-19**



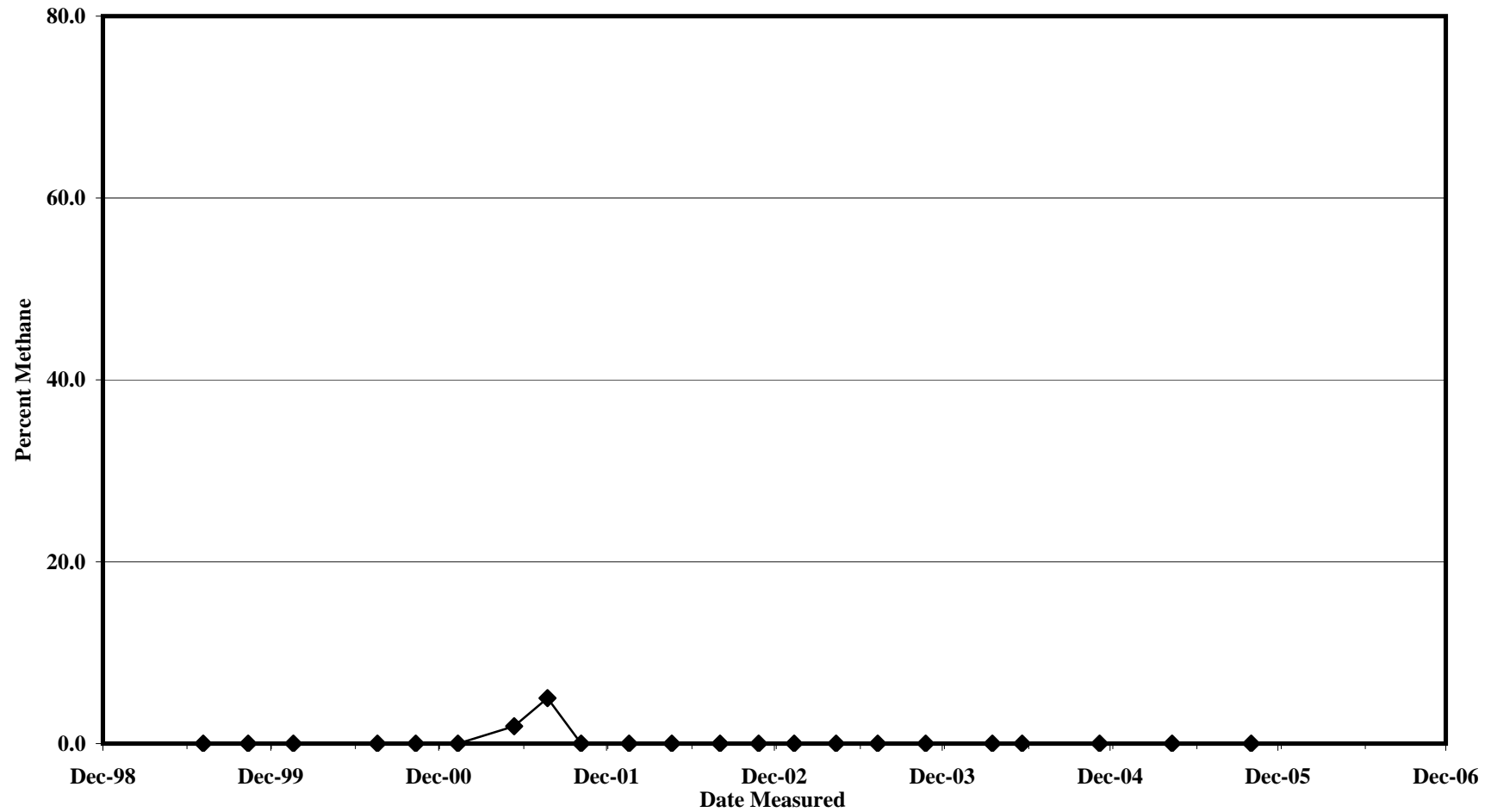
**FIGURE F-20**

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
TIME SERIES OF PERCENT METHANE PLOT, LANDFILL GAS MONITORING WELL LGMW1-1**



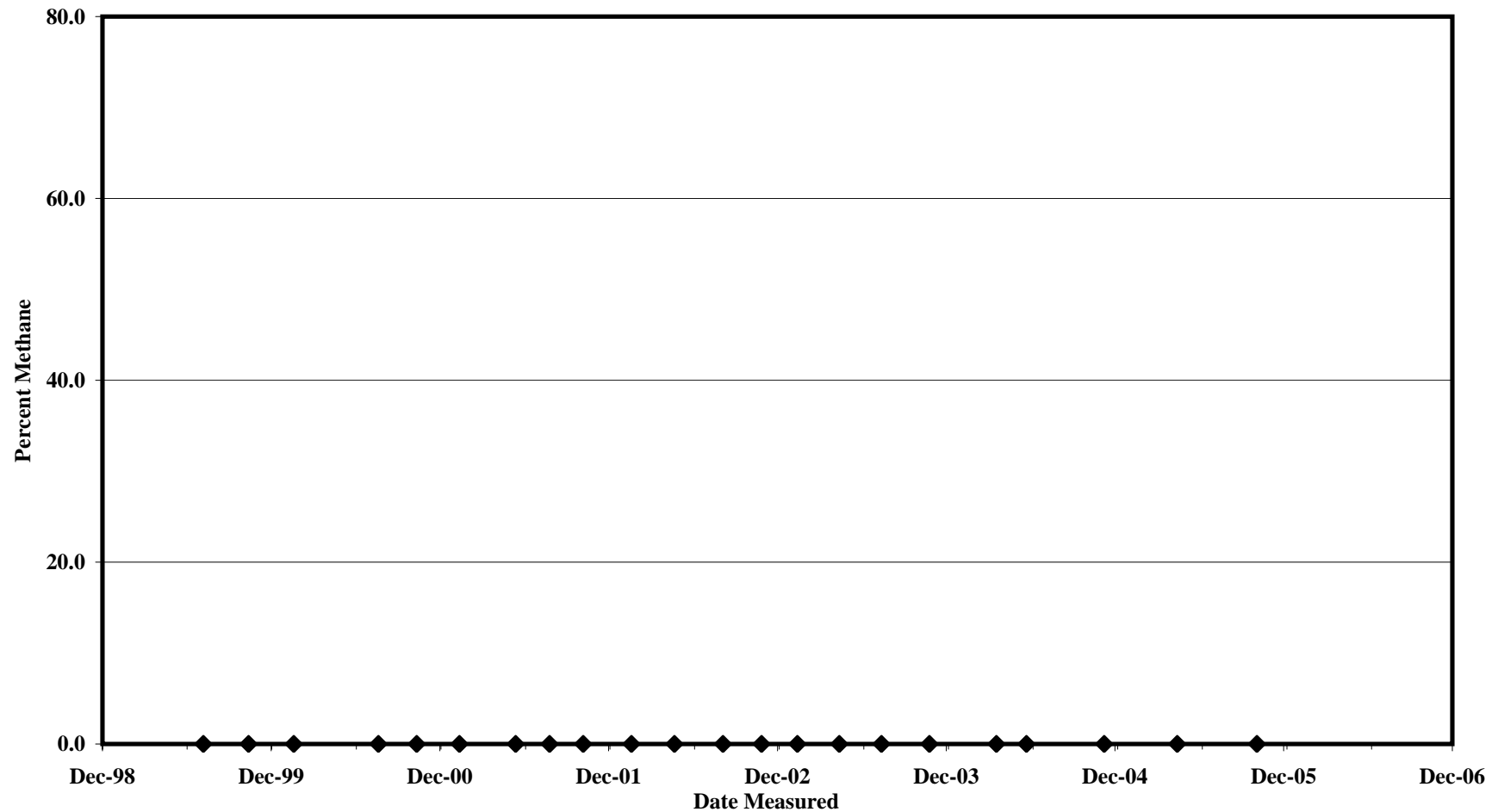
**FIGURE F-22**

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
TIME SERIES OF PERCENT METHANE PLOT, LANDFILL GAS MONITORING WELL LGMW1-3**



**FIGURE F-23**

**DRAFT SITE 1 LANDFILL 2005 ANNUAL REPORT  
TIME SERIES OF PERCENT METHANE PLOT, LANDFILL GAS MONITORING WELL LGMW1-4**





**APPENDIX G**

**2005 GENERAL SITE INSPECTION REPORTS AND**

**2005 SANTA CLARA COUNTY LANDFILL INSPECTION REPORTS**

## **2005 GENERAL SITE INSPECTION REPORTS**

TABLE 4-1

## SITE 1 LANDFILL GENERAL INSPECTION CHECKLIST AND FREQUENCY

Item	Frequency <sup>a</sup>	Condition			Comments
		Good	Needs Maintenance	N/A	
<b>General Site Conditions</b>					
- Perimeter Road	Semiannual	✓			<b>NO GATE SIGNS</b>
- Landfill signs	Semiannual	✓			<b>NO WE FOUND</b>
- Inspect for nesting owls and burrowing animals	Semiannual	✓			
- Security fencing and gates	Semiannual	✓			
- Riprap	Semiannual	✓			
- Raptor perches	Semiannual	✓			
<b>Landfill Cap</b>					
- Iso-settlement and surveying landfill settlement markers	Every 5 Years <sup>b</sup>	✓			<b>Completed 3/3/05</b>
- Erosion	Semiannual	✓			
- Visual observations of settling (i.e., cracking, sloughing)	Semiannual	✓			
- Vegetation control and restoration	Semiannual	✓			
- Cap breaching	Semiannual	✓			<b>YES WE BUT GOOD DRAINAGE</b>
- Water drainage	Semiannual	✓			
<b>Landfill Gas Vents</b>					
- Riser condition (i.e., paint, integrity)	Semiannual	✓			
- Identification tag present	Semiannual	✓			
- Concrete collar condition	Semiannual	✓			
- Screen condition	Semiannual	✓			
<b>Landfill Gas Monitoring Wells</b>					
- Riser condition (i.e., paint, integrity)	Semiannual	✓			
- Identification tag present	Semiannual	✓			
- Traffic protection (i.e., bollards)	Semiannual	✓			
- Concrete collar condition	Semiannual	✓			
- Well cap integrity	Semiannual	✓			
- Water drainage	Semiannual	✓			
- Well locks	Semiannual	✓			
<b>Collection Trench Wells</b>					
- Concrete collar condition	Semiannual	✓			
- Protective cover condition	Semiannual	✓			
- Identification number legibility	Semiannual	✓			

Site 1 Landfill Post-Closure Long-Term Maintenance Plan

Former Naval Air Station Moffett Field

DCN: FWSD-04C-01-2000

CTO No. 0086, Revision 0, 74

TABLE 4-1

## SITE 1 LANDFILL GENERAL INSPECTION CHECKLIST AND FREQUENCY

Item	Frequency <sup>a</sup>	Condition			Comments
		Good	Needs Maintenance	N/A	
- Well cap integrity	Semiannual	✓			
- Water drainage	Semiannual	✓			
- Well locks	Semiannual	✓			
<i>Groundwater Monitoring Wells and Piezometers</i>					
- Riser condition (i.e., paint, integrity, cover)	Semiannual		✓		W-1R Needs Painting
- Identification number legibility	Semiannual	✓			
- Concrete collar condition	Semiannual	✓			
- Traffic protection (i.e., bollards)	Semiannual	✓			
- Well cap integrity	Semiannual	✓			
- Water drainage	Semiannual	✓			
- Well locks	Semiannual	✓			
<i>Stormwater Runoff Control</i>					
- Water drainage	Semiannual	✓			Screens in Place
- Culvert and trench drainage	Semiannual	✓			
- Riprap	Semiannual	✓			
- Erosion	Semiannual	✓			
- Settlement	Semiannual	✓			

**Notes:**

(a) Frequency indicates minimum requirements. Semiannual inspections will be conducted in March and September, except for the stormwater runoff control, which will be inspected before the October rainy season and in May at the end of the rainy season. Inspections also are required after significant storm events and as needed.

(b) Every 5 years from the previous surveying and iso-settlement mapping.

**Abbreviations and Acronyms:**

N/A - not applicable

*Moore* 3/28/05

TABLE 4-1

## SITE 1 LANDFILL GENERAL INSPECTION CHECKLIST AND FREQUENCY

Item	Frequency <sup>a</sup>	Condition			Comments
		Good	Needs Maintenance	N/A	
<i>General Site Conditions</i>					
- Perimeter Road	Semiannual	✓			
- Landfill signs	Semiannual	✓			ONE SMALL BURROW FOUND
- Inspect for nesting owls and burrowing animals	Semiannual	✓			ONE SNAKE SEEN
- Security fencing and gates	Semiannual	✓			
- Riprap	Semiannual	✓			
- Raptor perches	Semiannual				
<i>Landfill Cap</i>					
- Iso-settlement and surveying landfill settlement markers	Every 5 Years <sup>b</sup>				
- Erosion	Semiannual	✓			
- Visual observations of settling (i.e., cracking, sloughing)	Semiannual	✓			
- Vegetation control and restoration	Semiannual	✓			
- Cap breaching	Semiannual	✓			
- Water drainage	Semiannual				
<i>Landfill Gas Vents</i>					
- Riser condition (i.e., paint, integrity)	Semiannual	✓			
- Identification tag present	Semiannual	✓			
- Concrete collar condition	Semiannual	✓			
- Screen condition					
<i>Landfill Gas Monitoring Wells</i>					
- Riser condition (i.e., paint, integrity)	Semiannual	✓			
- Identification tag present	Semiannual	✓			
- Traffic protection (i.e., bollards)	Semiannual	✓			
- Concrete collar condition	Semiannual	✓			
- Well cap integrity	Semiannual	✓			
- Water drainage	Semiannual	✓			
- Well locks					
<i>Collection Trench Wells</i>					
- Concrete collar condition	Semiannual	✓			
- Protective cover condition	Semiannual	✓			
- Identification number legibility	Semiannual	✓			

TABLE 4-1

## SITE 1 LANDFILL GENERAL INSPECTION CHECKLIST AND FREQUENCY

Item	Frequency <sup>a</sup>	Condition			Comments
		Good	Needs Maintenance	N/A	
- Well cap integrity	Semiannual	✓			
- Water drainage	Semiannual	✓			
- Well locks	Semiannual				
<i>Groundwater Monitoring Wells and Piezometers</i>					
- Riser condition (i.e., paint, integrity, cover)	Semiannual		✓		W1-18 Needs Painting
- Identification number legibility	Semiannual	✓			
- Concrete collar condition	Semiannual	✓			
- Traffic protection (i.e., bollards)	Semiannual	✓			
- Well cap integrity	Semiannual	✓			
- Water drainage	Semiannual	✓			
- Well locks	Semiannual	✓			Screens in Place
<i>Stormwater Runoff Control</i>					
- Water drainage	Semiannual	✓			
- Culvert and trench drainage	Semiannual	✓			
- Riprap	Semiannual	✓			
- Erosion	Semiannual	✓			
- Settlement	Semiannual	✓			

**Notes:**

(a) Frequency indicates minimum requirements. Semiannual inspections will be conducted in March and September, except for the stormwater runoff control, which will be inspected before the October rainy season and in May at the end of the rainy season. Inspections also are required after significant storm events and as needed.

(b) Every 5 years from the previous surveying and iso-settlement mapping.

**Abbreviations and Acronyms:**

N/A - not applicable

5/18/05  
*[Signature]*

TABLE 4-1

## SITE 1 LANDFILL GENERAL INSPECTION CHECKLIST AND FREQUENCY

Item	Frequency <sup>a</sup>	Condition			Comments
		Good	Needs Maintenance	N/A	
<i>General Site Conditions</i>					
- Perimeter Road	Semiannual	✓			
- Landfill signs	Semiannual	✓			Two Burrows - 1 East Road
- Inspect for nesting owls and burrowing animals	Semiannual	✓			
- Security fencing and gates	Semiannual	✓			
- Riprap	Semiannual	✓			
- Raptor perches	Semiannual	✓			
<i>Landfill Cap</i>					
- Iso-settlement and surveying landfill settlement markers	Every 5 Years <sup>b</sup>	✓			
- Erosion	Semiannual	✓			
- Visual observations of settling (i.e., cracking, sloughing)	Semiannual	✓			
- Vegetation control and restoration	Semiannual		Needs Mowds		Schedule For Mowds in Sept.
- Cap breaching	Semiannual	✓			
- Water drainage	Semiannual	✓			
<i>Landfill Gas Vents</i>					
- Riser condition (i.e., paint, integrity)	Semiannual	✓			
- Identification tag present	Semiannual	✓			
- Concrete collar condition	Semiannual	✓			
- Screen condition	Semiannual	✓			
<i>Landfill Gas Monitoring Wells</i>					
- Riser condition (i.e., paint, integrity)	Semiannual	✓			
- Identification tag present	Semiannual	✓			
- Traffic protection (i.e., bollards)	Semiannual	✓			
- Concrete collar condition	Semiannual	✓			
- Well cap integrity	Semiannual	✓			
- Water drainage	Semiannual	✓			
- Well locks	Semiannual	✓			
<i>Collection Trench Wells</i>					
- Concrete collar condition	Semiannual	✓			
- Protective cover condition	Semiannual	✓			
- Identification number legibility	Semiannual	✓			

Site 1 Landfill Post-Closure Long-Term Maintenance Plan

Former Naval Air Station Moffett Field

DCN: FWSO-RAC-04-2000

CTO No. 0086, Revision 0, 06/18/04

TABLE 4-1

## SITE 1 LANDFILL GENERAL INSPECTION CHECKLIST AND FREQUENCY

Item	Frequency <sup>a</sup>	Condition			Comments
		Good	Needs Maintenance	N/A	
- Well cap integrity	Semiannual	✓			
- Water drainage	Semiannual	✓			
- Well locks	Semiannual	✓			
<i>Groundwater Monitoring Wells and Piezometers</i>					
- Riser condition (i.e., paint, integrity, cover)	Semiannual	✓			
- Identification number legibility		OK			
- Concrete collar condition	Semiannual	✓			
- Traffic protection (i.e., bollards)	Semiannual	✓			
- Well cap integrity	Semiannual	✓			
- Water drainage	Semiannual	✓			
- Well locks	Semiannual	✓			
<i>Stormwater Runoff Control</i>					
- Water drainage	Semiannual	✓			
- Culvert and trench drainage	Semiannual	✓			
- Riprap	Semiannual	✓			
- Erosion	Semiannual	✓			
- Settlement	Semiannual	✓			

**Notes:**

(a) Frequency indicates minimum requirements. Semiannual inspections will be conducted in March and September, except for the stormwater runoff control, which will be inspected before the October rainy season and in May at the end of the rainy season. Inspections also are required after significant storm events and as needed.

(b) Every 5 years from the previous surveying and iso-settlement mapping.

**Abbreviations and Acronyms:**

N/A - not applicable

*2609 CE*  
*8-12-05*



TABLE 4-1

## SITE 1 LANDFILL GENERAL INSPECTION CHECKLIST AND FREQUENCY

SITE 1 LANDFILL GENERAL MAINTENANCE PLAN

Item	Frequency <sup>a</sup>	Condition			Comments
		Good	Needs Maintenance	N/A	
<b>General Site Conditions</b>					
- Perimeter Road	Semiannual	✓			
- Landfill signs	Semiannual	✓			
- Inspect for nesting owls and burrowing animals	Semiannual	✓			
- Security fencing and gates	Semiannual	✓			
- Riprap	Semiannual	✓			
- Raptor perches	Semiannual	✓			
<b>Landfill Cap</b>					
- Iso-settlement and surveying landfill settlement markers	Every 5 Years <sup>b</sup>	✓			
- Erosion	Semiannual	✓			
- Visual observations of settling (i.e., cracking, sloughing)	Semiannual	✓			
- Vegetation control and restoration	Semiannual	✓			
- Cap breaching	Semiannual	✓			
- Water drainage	Semiannual	✓			
<b>Landfill Gas Vents</b>					
- Riser condition (i.e., paint, integrity)	Semiannual	✓			
- Identification tag present	Semiannual	✓			
- Concrete collar condition	Semiannual	✓			
- Screen condition	Semiannual	✓			
<b>Landfill Gas Monitoring Wells</b>					
- Riser condition (i.e., paint, integrity)	Semiannual	✓			
- Identification tag present	Semiannual	✓			
- Traffic protection (i.e., bollards)	Semiannual	✓			
- Concrete collar condition	Semiannual	✓			
- Well cap integrity	Semiannual	✓			
- Water drainage	Semiannual	✓			
- Well locks	Semiannual	✓			
<b>Collection Trench Wells</b>					
- Concrete collar condition	Semiannual	✓			
- Protective cover condition	Semiannual	✓			
- Identification number legibility	Semiannual	✓			

SMALL DISAREAS & GEOTE MALP  
ACTIVITY  
HOPE SHEETS CRACKED AT BOOTS - NOT PA

NEWES

Site 1 Landfill Post-Closure Long-Term Maintenance Plan  
General Neutral Air Station Monitor Field

Site 1 Landfill Post-Closure Long-Term Maintenance Plan

Former Naval Air Station Moffett Field

DCN: FWSD-RAC-04-2000

CTO No. 0086, Revision 0, 0

TABLE 4-1

SITE 1 LANDFILL GENERAL INSPECTION CHECKLIST AND FREQUENCY

Item	Frequency <sup>a</sup>	Condition			Comments
		Good	Needs Maintenance	N/A	
- Well cap integrity	Semiannual	✓			
- Water drainage	Semiannual	✓			
- Well locks	Semiannual				
<i>Groundwater Monitoring Wells and Piezometers</i>					
- Riser condition (i.e., paint, integrity, cover)	Semiannual	✓			
- Identification number legibility	Semiannual	OK			
- Concrete collar condition	Semiannual	✓			
- Traffic protection (i.e., bollards)	Semiannual	✓			
- Well cap integrity	Semiannual	✓			
- Water drainage	Semiannual	✓			
- Well locks					
<i>Stormwater Runoff Control</i>					
- Water drainage	Semiannual	✓			
- Culvert and trench drainage	Semiannual	✓			
- Riprap	Semiannual	✓			
- Erosion	Semiannual	✓			
- Settlement	Semiannual	✓			

*SCREWS STILL IN PLACE*

*[Signature]*  
11/14/05

Notes:

(a) Frequency indicates minimum requirements. Semiannual inspections will be conducted in March and September, except for the stormwater runoff control, which will be inspected before the October rainy season and in May at the end of the rainy season. Inspections also are required after significant storm events and as needed.

(b) Every 5 years from the previous surveying and iso-settlement mapping.

Abbreviations and Acronyms:

N/A - not applicable

## **2005 SANTA CLARA COUNTY LANDFILL INSPECTION REPORTS**

STATE OF CALIFORNIA  
CWMB-189 (New 6/04)

## Closed Disposal Site Inspection Report

CALIFORNIA INTEGRATED WASTE  
MANAGEMENT BOARD

Enforcement Agency: Santa Clara County, Department of Environmental Health - Local Enforcement Agency

Page 1 of 1

PAGE/FACILITY FILE NUMBER/Unit # <b>43-AA-0005</b>	PROGRAM CODE LOCAL #1 STATE #5 LOCAL = L	INSPECTION DATE 2/23/05	TIME IN 10:00 AM	INSPECTION TIME
FACILITY NAME <b>NASA/MOFFETT FIELD - Sites 1 &amp; 22 Landfills</b>			RECEIVED BY (OPERATOR) <i>Day / Monahan</i>	
FACILITY LOCATION <b>Moffett Field, CA</b>			OWNER <b>United States Government</b>	
INSPECTOR <b>Chris Rummel, R.E.H.S.</b>		INSPECTOR SIGNATURE <i>Chris Rummel</i>	ALSO PRESENT <b>Mary Parker - Proj. Mgr</b>	

THE ABOVE FACILITY WAS INSPECTED FOR COMPLIANCE WITH APPLICABLE SECTIONS OF DIVISION 30 OF PUBLIC RESOURCES CODE (PRC) AND TITLE 27 CALIFORNIA CODE OF REGULATION (CCR).

THE STANDARDS BELOW ARE CONSIDERED IN COMPLIANCE UNLESS OTHERWISE MARKED WITH ONE OF THE FOLLOWING: V = VIOLATION A = AREA OF CONCERN NA = NOT APPLICABLE

POSTCLOSURE	V	A	NA
20750 - SITE MAINTENANCE			
21180 - POSTCLOSURE MAINTENANCE			
21190 - POSTCLOSURE LAND USE			
GAS MONITORING AND CONTROL SYSTEMS			
20919 - EXEMPTIONS			
20919 - GAS CONTROLS			
20919.5 - EXPLOSIVE GAS CONTROL			
20921 - GAS MONITORING CONTROL			
20923 - MONITORING			
20925 - PERIMETER MONITORING NETWORK			
20931 - STRUCTURE MONITORING			
20932 - MONITORED PARAMETERS			
20933 - MONITORING FREQUENCY			
20934 - REPORTING			
20937 - CONTROL			
GRADING/FINAL COVER			
20950 - GRADING OF FILL SURFACES			
21140 - FINAL COVER			
21142 - FINAL GRADING			
21145 - SLOPE STABILITY			

DRAINAGE AND EROSION CONTROL	V	A	NA
20820 - DRAINAGE/EROSION CONTROL			
21150 - DRAINAGE/EROSION CONTROL			
MONITORING AND CONTROL SYSTEMS			
20790 - LEACHATE CONTROL			
20830 - LITTER CONTROL			
21160 - LF GAS CONTROL/LEACHATE CONTACT			
SECURITY			
20630 - SITE SECURITY			
21135 - SECURITY AT CLOSED SITES			
21137 - STRUCTURE REMOVAL			
RECORDS			
21130 - EMERGENCY RESPONSE PLAN			
21170 - RECORDING			
21200 - CHANGE OF OWNERSHIP			
CLOSURE PLANS			
21880 - CERTIFICATION OF CLOSURE			
21890 - REVISION OF APPROVED PLANS FOR C/PC MAINT			
OTHER			

COMMENTS (USE CWMB 3 FOR ADDITIONAL SPACE)

SITE 1: Site inspection revealed no problem areas. Site looked excellent.

SITE 22: No deficiencies to report.

DOCUMENTS RECEIVED SINCE LAST INSPECTION 11/17/04:

March 2004 Site 1 Sampling Event, Former NAS Moffett Field

May 2004 Site 1 Sampling Event, Former NAS Moffett Field

# Closed Disposal Site Inspection Report

Enforcement Agency: Santa Clara County, Department of Environmental Health - Local Enforcement Agency

Page 1 of 1

FACILITY FILE NUMBER/DATE	PROGRAM CODE LOCAL #1 STATE #5	INSPECTION DATE MM DD YY	TIME IN 10:00 AM	INSPECTION TIME
43-AA-0005	LOCAL = L	5/18/05	TIME OUT 12:00	2 hrs.
FACILITY NAME NASA/MOFFETT FIELD - Sites 1 & 22 Landfills			RECEIVED BY (OPERATOR) Dan / Murchawa	
FACILITY LOCATION Moffett Field, CA			OWNER United States Government	
INSPECTOR Chris Rummel, R.E.H.S.	INSPECTOR SIGNATURE <i>Chris Rummel</i>		ALSO PRESENT Bill Ogle & David Smith	

THE ABOVE FACILITY WAS INSPECTED FOR COMPLIANCE WITH APPLICABLE SECTIONS OF DIVISION 30 OF PUBLIC RESOURCES CODE (PRC) AND TITLE 27 CALIFORNIA CODE OF REGULATION (CCR).

THE STANDARDS BELOW ARE CONSIDERED IN COMPLIANCE UNLESS OTHERWISE MARKED WITH ONE OF THE FOLLOWING: V = VIOLATION A = AREA OF CONCERN NA = NOT APPLICABLE

POSTCLOSURE	V	A	NA
20750 - SITE MAINTENANCE			
21180 - POSTCLOSURE MAINTENANCE			
21190 - POSTCLOSURE LAND USE			
GAS MONITORING AND CONTROL SYSTEMS			
20918 - EXEMPTIONS			
20919 - GAS CONTROLS			
20919.5 - EXPLOSIVE GAS CONTROL			
20921 - GAS MONITORING/CONTROL			
20923 - MONITORING			
20925 - PERIMETER MONITORING NETWORK			
20931 - STRUCTURE MONITORING			
20932 - MONITORED PARAMETERS			
20933 - MONITORING FREQUENCY			
20934 - REPORTING			
20937 - CONTROL			
GRADING/FINAL COVER			
20650 - GRADING OF FILL SURFACES			
21140 - FINAL COVER			
21142 - FINAL GRADING			
21145 - SLOPE STABILITY			

DRAINAGE AND EROSION CONTROL	V	A	NA
20820 - DRAINAGE/EROSION CONTROL			
21150 - DRAINAGE/EROSION CONTROL			
MONITORING AND CONTROL SYSTEMS			
20790 - LEACHATE CONTROL			
20830 - LITTER CONTROL			
21180 - LF GAS CONTROL/LEACHATE CONTACT			
SECURITY			
20530 - SITE SECURITY			
21135 - SECURITY AT CLOSED SITES			
21137 - STRUCTURE REMOVAL			
RECORDS			
21130 - EMERGENCY RESPONSE PLAN			
21170 - RECORDING			
21200 - CHANGE OF OWNERSHIP			
CLOSURE PLANS			
21880 - CERTIFICATION OF CLOSURE			
21890 - REVISION OF APPROVED PLANS FOR C/PC MAINT			
OTHER			

COMMENTS (USE CIWMB 3 FOR ADDITIONAL SPACE)

**SITE 1:** Site inspection revealed no problem areas. Site looked excellent.

**SITE 22:** No deficiencies to report.

## DOCUMENTS RECEIVED SINCE LAST INSPECTION 2/23/05:

March 18, 2005 Final Site 1 Landfill Post-Closure Long-Term Monitoring Plan Rev.0  
 March 18, 2005 Final Site 1 Landfill Post-Closure Long-Term Maintenance Plan Rev.0  
 March 31, 2005 Groundwater Report Operable Unit 1, Rev. 0

## Closed Disposal Site Inspection Report

Enforcement Agency: Santa Clara County, Department of Environmental Health - Local Enforcement Agency

Page 1 of 1

FACILITY FILE NUMBER/Unit # <b>43-AA-0005</b>	PROGRAM CODE LOCAL = L STATE = S LOCAL = L	INSPECTION DATE MM DD YY <b>8/24/05</b>	TIME IN <b>10:00 AM</b>	INSPECTION TIME
			TIME OUT <b>12:00</b>	
FACILITY NAME <b>NASA/MOFFETT FIELD - Sites 1 &amp; 22 Landfills</b>			RECEIVED BY (OPERATOR) <b>Gary Muneke</b>	
FACILITY LOCATION <b>Moffett Field, CA</b>			OWNER <b>United States Government</b>	
INSPECTOR <b>Chris Rummel, R.E.H.S.</b>		INSPECTOR SIGNATURE <i>Chris Rummel</i>	ALSO PRESENT <b>Bill Ogle, David Smith, Quan Mai</b>	

THE ABOVE FACILITY WAS INSPECTED FOR COMPLIANCE WITH APPLICABLE SECTIONS OF DIVISION 30 OF PUBLIC RESOURCES CODE (PRC) AND TITLE 27 CALIFORNIA CODE OF REGULATION (CCR).

THE STANDARDS BELOW ARE CONSIDERED IN COMPLIANCE UNLESS OTHERWISE MARKED WITH ONE OF THE FOLLOWING: V = VIOLATION A = AREA OF CONCERN NA = NOT APPLICABLE

POSTCLOSURE	V	A	NA
20750 - SITE MAINTENANCE			
21180 - POSTCLOSURE MAINTENANCE			
21190 - POSTCLOSURE LAND USE			
GAS MONITORING AND CONTROL SYSTEMS			
20918 - EXEMPTIONS			
20919 - GAS CONTROLS			
20919.5 - EXPLOSIVE GAS CONTROL			
20921 - GAS MONITORING/CONTROL			
20923 - MONITORING			
20925 - PERIMETER MONITORING NETWORK			
20931 - STRUCTURE MONITORING			
20932 - MONITORED PARAMETERS			
20933 - MONITORING FREQUENCY			
20934 - REPORTING			
20937 - CONTROL			
GRADING/FINAL COVER			
20650 - GRADING OF FILL SURFACES			
21140 - FINAL COVER			
21142 - FINAL GRADING			
21145 - SLOPE STABILITY			

DRAINAGE AND EROSION CONTROL	V	A	NA
20820 - DRAINAGE/EROSION CONTROL			
21150 - DRAINAGE/EROSION CONTROL			
MONITORING AND CONTROL SYSTEMS			
20790 - LEACHATE CONTROL			
20830 - LITTER CONTROL			
21160 - LF GAS CONTROL/LEACHATE CONTACT			
SECURITY			
20530 - SITE SECURITY			
21135 - SECURITY AT CLOSED SITES			
21137 - STRUCTURE REMOVAL			
RECORDS			
21130 - EMERGENCY RESPONSE PLAN			
21170 - RECORDING			
21200 - CHANGE OF OWNERSHIP			
CLOSURE PLANS			
21880 - CERTIFICATION OF CLOSURE			
21890 - REVISION OF APPROVED PLANS FOR C/PC MAINT			
OTHER			

## COMMENTS (USE CIWMB 3 FOR ADDITIONAL SPACE)

**SITE 1:** Site inspection revealed no problem areas. Site looked excellent.

Gas vents were tested during the inspection using a portable methane gas detector with the following results:

GV-3 = 0 ppm, GV-4 = 0 ppm, GV-5 = 7% gas, GV-7 = 44% gas, GV-8 = 40% gas, GV-10 = 60%LEL, GV-11 = 38% gas,  
GV-12 = 1 to 3% LEL.**SITE 22:** No deficiencies to report.

Perimeter methane gas monitoring well in the perimeter road, LGMW-3 was found to have a 3% gas reading when stabilized, with an initial spike during purging at ranges up to 20% gas by volume. Previous testing of this well by Foster Wheeler indicated the same reading of 3% gas. The limit for perimeter gas migration is 5% gas at the facility boundary, which in this case is not at the perimeter of the waste, but rather the property boundary. Thus, reading of this well above 5% gas are not necessarily a violation.

Note: Semi-annual monitoring plan with sampling in February and August is appropriate.

## DOCUMENTS RECEIVED SINCE LAST INSPECTION 5/18/05:

June 22, 2005 Site 1 Landfill - 2004 Annual Report-Draft

Aug. 12, 2005 Site 22 Post Construction Operatuins, Maintenance, and Monitoring Plan Addendum - Rev. 0 -Draft

## Closed Disposal Site Inspection Report

Enforcement Agency: Santa Clara County, Department of Environmental Health - Local Enforcement Agency

Page 1 of 1

FACILITY FILE NUMBER/Unit # 43-AA-0005	PROGRAM CODE LOCAL = L STATE = S LOCAL = L	INSPECTION DATE MM DD YY 11/16/05	TIME IN 10:00 AM TIME OUT 12:00	INSPECTION TIME
FACILITY NAME NASA/MOFFETT FIELD - Sites 1 & 22 Landfills			RECEIVED BY (OPERATOR) Gary Munekawa <i>Gary Munekawa</i>	
FACILITY LOCATION Moffett Field, CA			OWNER United States Government	
INSPECTOR Chris Rummel, R.E.H.S.	INSPECTOR SIGNATURE <i>Chris Rummel</i>		ALSO PRESENT Bill Ogle, David Smith	

THE ABOVE FACILITY WAS INSPECTED FOR COMPLIANCE WITH APPLICABLE SECTIONS OF DIVISION 30 OF PUBLIC RESOURCES CODE (PRC) AND TITLE 27 CALIFORNIA CODE OF REGULATION (CCR).

THE STANDARDS BELOW ARE CONSIDERED IN COMPLIANCE UNLESS OTHERWISE MARKED WITH ONE OF THE FOLLOWING: V = VIOLATION A = AREA OF CONCERN NA = NOT APPLICABLE

POSTCLOSURE	V	A	NA
20750 - SITE MAINTENANCE			
21180 - POSTCLOSURE MAINTENANCE			
21190 - POSTCLOSURE LAND USE			
GAS MONITORING AND CONTROL SYSTEMS			
20918 - EXEMPTIONS			
20919 - GAS CONTROLS			
20919.5 - EXPLOSIVE GAS CONTROL			
20921 - GAS MONITORING/CONTROL			
20923 - MONITORING			
20925 - PERIMETER MONITORING NETWORK			
20931 - STRUCTURE MONITORING			
20932 - MONITORED PARAMETERS			
20933 - MONITORING FREQUENCY			
20934 - REPORTING			
20937 - CONTROL			
GRADING/FINAL COVER			
20650 - GRADING OF FILL SURFACES			
21140 - FINAL COVER			
21142 - FINAL GRADING			
21145 - SLOPE STABILITY			

DRAINAGE AND EROSION CONTROL	V	A	NA
20820 - DRAINAGE/EROSION CONTROL			
21150 - DRAINAGE/EROSION CONTROL			
MONITORING AND CONTROL SYSTEMS			
20790 - LEACHATE CONTROL			
20830 - LITTER CONTROL			
21160 - LF GAS CONTROL/LEACHATE CONTACT			
SECURITY			
20530 - SITE SECURITY			
21135 - SECURITY AT CLOSED SITES			
21137 - STRUCTURE REMOVAL			
RECORDS			
21130 - EMERGENCY RESPONSE PLAN			
21170 - RECORDING			
21200 - CHANGE OF OWNERSHIP			
CLOSURE PLANS			
21880 - CERTIFICATION OF CLOSURE			
21890 - REVISION OF APPROVED PLANS FOR C/P/C MAINT			
OTHER			

COMMENTS (USE CIWMB 3 FOR ADDITIONAL SPACE)

SITE 1: Site inspection revealed no problem areas. Site looked excellent.

SITE 22: No deficiencies to report.

DOCUMENTS RECEIVED SINCE LAST INSPECTION 8/24/05:

None

## **APPENDIX H**

### **CORRESPONDENCE**





# California Regional Water Quality Control Board

## San Francisco Bay Region



Alan C. Lloyd  
Secretary for  
Environmental  
Protection

1515 Clay Street, Suite 1400, Oakland, California 94612  
(510) 622-2300 • Fax (510) 622-2460  
<http://www.swrcb.ca.gov/rwqcb2>

Arnold Schwarzenegger  
Governor

Date: MAY 12 2005  
File No.: 2189.8009 (AVC)

Base Realignment and Closure  
Program Management Office West  
Attn: Mr. Richard Weissenborn, Lead RPM  
1230 Columbia Street, Suite 1100  
San Diego, CA 92101-8517

**Subject:** Concurrence on the Final Site 1 Landfill Post-Closure Long-Term Monitoring Plan, Former Naval Air Station Moffett Field, Moffett Field, California, Revision 0, dated March 18, 2004

Dear Mr. Weissenborn:

Thank you for the Final Site 1 Landfill Post-Closure Long Term Monitoring Plan, Former Naval Air Station Moffett Field, Moffett Field, California, Revision 0, dated March 18, 2005, received on March 21, 2005, by the San Francisco Bay Regional Water Quality Control Board (Water Board). Water Board staff has thoroughly reviewed the final document and this letter presents our concurrence on the long term monitoring plan.

Please don't hesitate to call me at (510) 622-2353 or E-mail to [AConstantinescu@waterboards.ca.gov](mailto:AConstantinescu@waterboards.ca.gov) if you would like to discuss this letter further.

Sincerely,

Adriana Constantinescu, PG  
Project Manager – Moffett Field

cc: Ms. Lida Tan, Project Manager EPA  
Ms. Sandy Olliges, Env. Services Director, NASA  
Mr. Bob Moss, RAB Chairperson

C:\Moffett\MoffettFieldSite1\FinalLTMPConLetter.doc





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION IX  
75 Hawthorne Street  
San Francisco, CA 94105

May 26, 2005

Mr. Rick Weissenborn  
BRAC Environmental Coordinator  
Southwest Division  
Naval Facilities Engineering Command  
BRAC Operation Office  
1230 Columbia Street, Suite 1100  
San Diego, CA 92101-0961

**RE: EPA Concurrence – Final Site 1 Landfill Post-Closure Long-Term Monitoring and Maintenance Plans dated March 18, 200<sup>5</sup>, Former Moffett Federal Airfield, Moffett, California**

Dear Mr. Weissenborn:

The U.S. Environmental Protection Agency (EPA) received the Final Site 1 Landfill Post-Closure Long-Term Monitoring and Maintenance Plans dated March 18, 2005. EPA comments on the draft reports (September 14, 2004) have been adequately discussed and addressed in the draft final documents. EPA have no more comments on the subject reports.

If you have any questions, please feel free to call me at (415) 972-3018, or contact me by email at [tan.lida@epa.gov](mailto:tan.lida@epa.gov).

Sincerely,

A handwritten signature in black ink, appearing to read "Lida Tan", is positioned above the typed name.

Lida Tan  
Remedial Project Manager  
Superfund Federal Facility Branch  
EPA Region 9

cc:

Ms. Adriana Constantinescu  
Regional Water Quality Control Board  
San Francisco Bay Region

1515 Clay Street, Suite 1400  
Oakland, CA 94612

Mr. Don Chuck  
NASA M/S 218-1  
Ames Research Center  
Moffett Field, CA 94035

✓ Ms. Mary Parker  
Remedial Project Manager  
Southwest Division  
Naval Facilities Engineering Command  
BRAC Operation Office  
230 Columbia Street, Suite 1100  
San Diego, CA 92101-0961

Mr. Chris Rummel  
Department of Environmental Health  
County of Santa Clara Environmental Resources Agency  
P.O. Box 28070  
San Jose, 95159-4206

Mr. Tom Mohr  
Santa Clara Valley Water District  
5750 Almaden Expressway  
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